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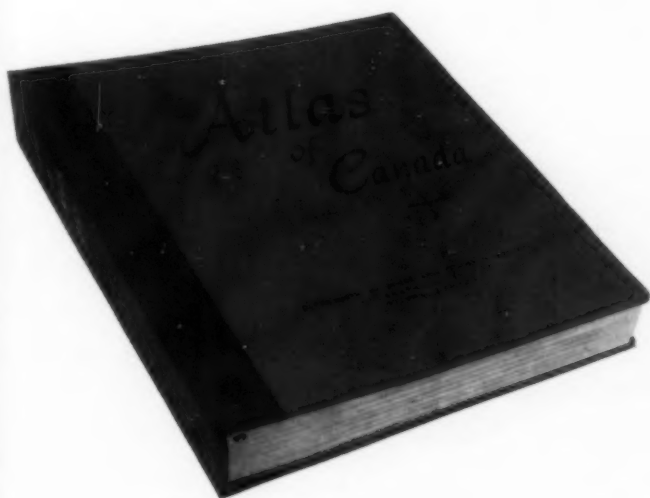
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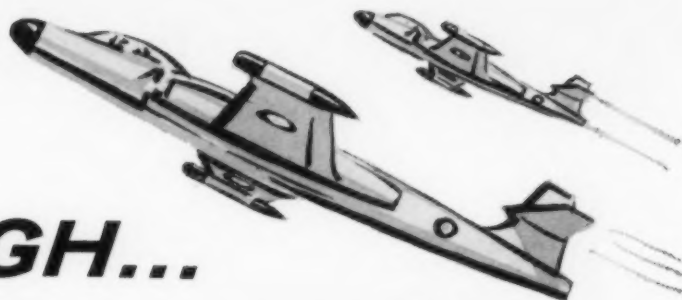
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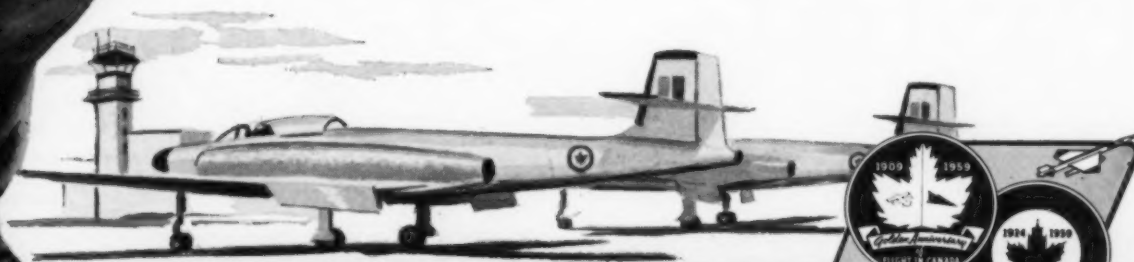
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CONTENTS

JUNE 1959 + VOLUME LVIII + NUMBER 6

COVER SUBJECT:—*Woodcock Falls on the Fond-du-Lac River, Saskatchewan.*

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	Page
MODERN TRENDS IN AGRICULTURE— QUEBEC	166
COUP D'OEIL SUR LE QUÉBEC AGRICOLE by RENÉ TRÉPANIER	
AFFORESTATION BRINGS WEALTH TO SWAZILAND	180
by LYN HARRINGTON	
PLACE OF POLLOCK: THE PASSAMAQUODDY BAY	182
by ESTHER CLARK WRIGHT	
THE SNOWY MOUNTAINS SCHEME	188
by H. STEWART HAY	
PICTURES OF THE PROVINCES—XVIII	192
EDITOR'S NOTE-BOOK	VII
AMONGST THE NEW BOOKS	VIII



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Ayrshire cattle on the Ile d'Orléans. On the other side of the St. Lawrence are the rounded summits of the Laurentians.

Bétail Ayrshire sur l'Ile d'Orléans. Par delà le Saint-Laurent, les cimes arrondies des Laurentides.

Modern Trends in Agriculture: A Glance at Rural Quebec

Coup d'oeil sur le Québec agricole et son orientation

by RENÉ TRÉPANIER

AMIDST the remarkable industrial development which has taken place in the Province of Quebec during the past quarter of a century, there has been a steady, if less spectacular, progress in agriculture which should not be overlooked. One hundred and twenty thousand farms and a farming population of over three-quarters of a million continue to impart to the provincial economy elements of diversity and, above all, of stability for which there is a growing need. In terms of mere numbers it is worth recalling that farm property is

LE FORMIDABLE développement industriel que connaît la province de Québec depuis un quart de siècle ne devrait pas faire oublier les progrès moins spectaculaires, il est vrai, mais constants, de son agriculture. Avec ses cent vingt mille fermes où vit une population de sept cent soixante-cinq mille personnes, l'agriculture demeure pour l'économie du Québec un facteur de richesse et surtout de stabilité de plus en plus nécessaire. A ceux que les chiffres impressionnent, soulignons que les fermes s'estiment, en capital, à un milliard et demi et

valued at one and a half billion dollars and gross farm production at half a billion.

The Farmers

Over ninety-five per cent of Quebec farmers are French and Roman Catholic. They have made the parish with its single church the natural setting of their local organizations: co-operatives, credit unions, agricultural associations and farm groups. They have retained the worthiest traditions of their ancestors, the first settlers. With few exceptions every farmer is his own master and owns and farms his own land.

Portrait of an Average Farm

In the following brief sketch we have attempted to portray those features most commonly found on a Quebec farm. The average farm comprises between one hundred and twenty-five and one hundred and seventy acres of land in the shape of a very long, narrow rectangle with the shorter side bordering on a highway and the longer side extending back from it for a mile or more. The house with its convenient kitchen garden faces the road. A little way behind lie the wood-shed, the garage sheltering the car or truck and the tractor as well, the chicken-house and the piggery.

The barn, often flanked by one or a pair of silos, is big enough to house fifteen or twenty head of dairy cows and their calves, and the work horses, and to store sufficient fodder to

que leur production brute atteint le demi milliard de dollars.

Les cultivateurs

Plus de quatre-vingt-quinze pour cent des cultivateurs sont d'ascendance française et catholiques. Ils ont fait de la paroisse, avec son église unique, le cadre naturel de toutes leurs organisations locales: coopératives, caisses populaires, associations professionnelles, cercles de fermières, etc.

Héritiers des premiers colons du pays, ils ont conservé le meilleur de leurs traditions.

A peu d'exceptions près, le cultivateur est maître chez lui et exploite son domaine en propriétaire.

Une ferme moyenne

Essayons de faire entrer dans le portrait d'une ferme les éléments qu'on retrouve le plus souvent sur la ferme québécoise.

Une ferme moyenne couvre une superficie de cent vingt-cinq à cent soixante-dix acres. C'est un rectangle très allongé dont le grand côté mesure un mille ou plus; le petit côté touche au chemin public. Tout près de la maison, qui fait face à la route, le jardin potager; un peu en retrait: le hangar pour le bois de chauffage, le garage, qui peut loger l'auto ou le camion en même temps que le tracteur, le poulailler et la porcherie. La grange-étable, souvent flanquée d'un ou deux silos, est assez vaste pour abriter quinze à vingt vaches laitières, les veaux, les chevaux de trait, et emmagasiner le fourrage

Faced with the prospect of a rapidly developing domestic market, the Quebec farmer looks to the future with confidence.

En face d'un marché domestique qui se développe rapidement, le cultivateur québécois peut envisager l'avenir avec confiance.





A visit from the local agronomist. The Quebec Department of Agriculture maintains 92 agricultural extension offices distributed throughout the province.

Une visite de l'agronome local. Le ministère provincial de l'agriculture maintient quatre-vingt-douze bureaux de renseignements agricoles, disséminés par toute la Province.

tide them over a period of five or six months of winter feeding. The machinery shed is built in the open, several hundred feet further back, in order to safeguard the agricultural implements from the danger of fire.

The land is divided into four or five parts on which hay and pasture crops alternate in rotation with hoed crops (potatoes, silage corn, mangels and swedes) and with grain (oats and mixed grains). The pasture is often maintained apart from the rotation on a piece of land divided into several parcels which are ploughed up in turn following a four-year cycle.

At the far end of the farm, or occupying comparatively unproductive land, lies the woodlot,

nécessaire à cinq ou six mois d'hivernement. On a construit la remise à quelques centaines de pieds en arrière, en plein champ, afin de protéger les machines aratoires contre l'incendie.

La terre est divisée en quatre ou cinq soles. Prairies et pâturages alternent en rotation avec les cultures sarclées (pommes-de-terre, maïs fourrager, betteraves et choux de Siam) et les céréales (avoine ou grains mélangés). Souvent le pâturage s'établit sur un champ en-dehors de la rotation générale; on le divise alors en plusieurs parcelles qui sont labourées à tour de rôle, suivant un cycle de quatre ans.

Tout 'en haut' de la terre, ou occupant un terrain relativement inculte, on trouve le boisé



Ploughing in Wolfe County.

Les labours, dans le comté de Wolfe.

a source of firewood and timber, and the sugar-bush with its celebrated hut where, each year with the coming of spring, the sap of the maple trees is turned into sugar and syrup.

Mixed Farming

The foregoing plan is adapted to a system of mixed or diversified farming. The farm is organized primarily with a view to the production of the milk which is the principal source of income and which may be carried on in conjunction with several side-lines such as the rearing of pigs, poultry and sheep. Mixed farming is well suited to the conditions which have long prevailed in the province: large families where each member shares in the tasks of the farm and ready markets largely de-

de ferme, réserve de bois d'oeuvre et de chauffage, et l'érablière, avec la fameuse cabane où la sève d'érable sera transformée chaque printemps en sucre et en sirop.

Culture mixte

Le portrait que nous venons de faire s'adapte à la culture mixte, ou culture diversifiée. La ferme est organisée d'abord en vue de la production du lait qui fournira le revenu principal et peut supporter plusieurs productions secondaires: élevage de porcs, volailles, moutons, etc.

La culture mixte cadrerait bien avec les conditions qui ont longtemps prévalu dans la Province: main-d'oeuvre familiale nombreuse, nécessité de satisfaire un marché local immédiat vu les difficultés de communication. Elle offrait,

pendent on local suppliers because of difficulties of transportation.

This plan still continues to offer other advantages; for example, a more even distribution of risks and an opportunity to keep the available help gainfully employed over a longer period of the year.

Specialization

Of recent years, a number of factors have disposed Quebec farmers to specialization: modern transport facilities, a more discriminating knowledge of soils, the demands of large markets for quantity and quality, the reduction of risks owing to more effective methods of controlling the insects and diseases which attack plants and animals, and improvements in farm machinery.

The trend is already well marked. The farmers whose entire income is derived from milk are now numbered by the thousands, though their farms do not differ conspicuously

en plus, des avantages qu'on lui retrouve encore; par exemple, celui de répartir mieux les risques et d'utiliser la main-d'oeuvre sur une plus longue période de l'année.

Spécialisation

Les facilités modernes de transport, une connaissance plus approfondie des sols, les exigences des grands marchés en volume et en qualité, la diminution des risques due aux méthodes de protection plus efficaces contre les insectes et les maladies des plantes et du bétail, le perfectionnement de l'outillage, voilà autant de facteurs qui, depuis plusieurs années, poussent les agriculteurs du Québec vers la spécialisation.

Le mouvement est déjà bien marqué. On compte par milliers les fermes qui tirent la totalité de leur revenu de la vente du lait. Ces fermes ne diffèrent pas tellement, ni dans leur aspect physique, ni dans les méthodes de culture, de la ferme moyenne décrite plus haut.

Setting out celery in the field from a transplanter. Twenty thousand acres of muck soil are now in full production south of Montreal.

Mise en pleine terre du céleri, à l'aide de la planteuse automotrice. Une vingtaine de mille acres des terres noires au sud de Montréal sont déjà en pleine production.





With the increase in the number of tractors, now estimated at 60,000 in the Province of Quebec, the hay baler is enjoying a considerable vogue.

Avec l'augmentation rapide du nombre de tracteurs — Québec en compte aujourd'hui soixante mille — la presse mobile connaît une vogue considérable.

from the type we have described. On the other hand, according to the 1956 census, fifteen per cent of farms are without milking cattle and on these the pattern of farming has been radically altered. They include, amongst others, market-gardening enterprises and such extreme forms of specialization as large-scale poultry plants, cigarette-tobacco plantations and commercial orchards.

Field Crops

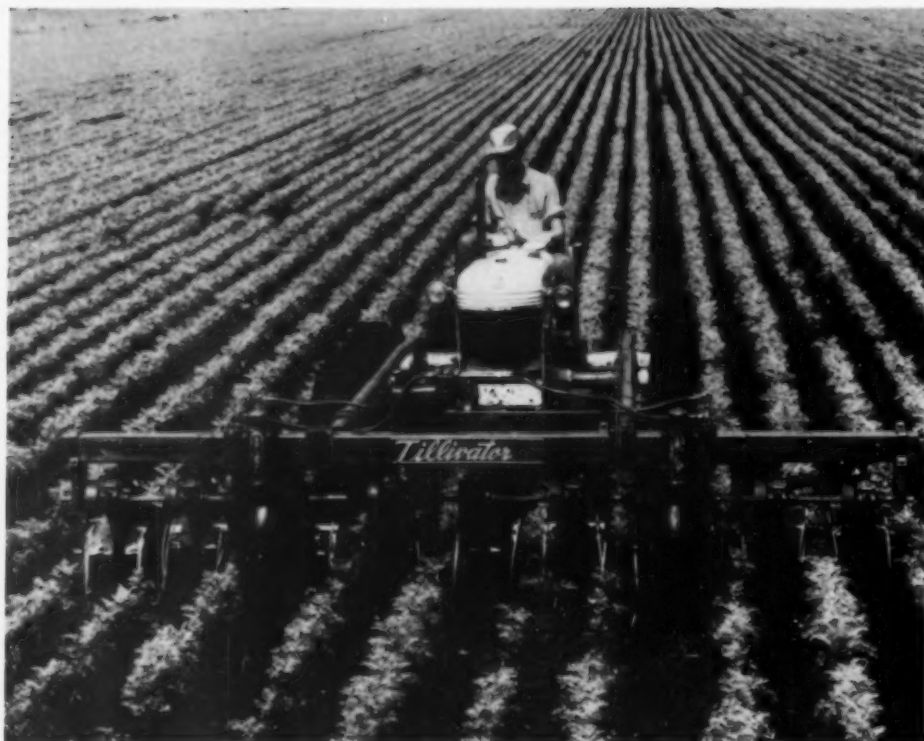
The farms of Quebec comprise a total area of 16 million acres of which 8,630,000 are under cultivation. Hay and pasture crops alone occupy 6,130,000 acres. These are sown to timothy, to red, white, alsike and ladino clovers, to alfalfa and brome-grass in various mixtures and proportions and often in as-

Par contre, d'après le recensement de 1956, quinze pour cent des fermes ne gardent aucun bétail laitier. Ici, le tableau change complètement. Ce dernier groupe comprend, entre autres, les fermes maraîchères et les cas de spécialisation très poussée: grandes installations avicoles, plantations de tabac à cigarette, vergers commerciaux.

Les grandes cultures

Les fermes du Québec couvrent une superficie de seize millions d'acres dont 8,630,000 sont en culture.

Prairies et pâturages occupent à eux seuls une étendue de 6,130,000 acres, engazonnée de mil, de trèfle rouge, de trèfle blanc, d'alsike, de ladino, de luzerne et de brome, suivant différents mélanges, et souvent associés à des plantes



One man cultivates nine rows at a time on the muck soil development at Sherrington, which is on the way to becoming the garden of the province.

Dans cette grande exploitation de terre noire, à Sherrington, un seul opérateur mène les opérations sur neuf rangs à la fois. Cette région est en passe de devenir le jardin de la Province.



*Sugar-beets for at
Des betteraves pour le de*

sociation with the blue-grasses, fescues and bents and other plants which are found growing wild in the province.

The leading grain crop is oats, occupying 1,257,000 acres; mixed grains cover 194,000 acres; silage corn, 78,000 acres; buckwheat, 47,000 acres; barley, 31,000 acres; wheat, 15,000 acres; grain corn, 12,000 acres; dried peas, 3,000 acres; linseed, 1,900 acres; and dry beans, 1,500 acres.

Hoed Crops

Potatoes, grown throughout the province, are the leading hoed or cultivated crop. The more important centres of production are in the neighbourhood of Montreal, the counties of Bas-Saint-Laurent and the Gatineau district.

Root crops—mangels, turnips and beets—occupy a total of 11,000 acres. In the Saint-Hyacinthe district 6,000 acres of clay soil are sown every year to sugar-beets to supply the refinery at Saint-Hilaire. Vegetable production for the market or for processing is concentrated about the metropolis.

The island of Montreal and Ile Jésus and the

qui croissent naturellement dans la Province: pâturins, fétuques, agrostides, etc.

Favorite parmi les céréales, l'avoine couvre 1,257,000 acres; les grains mélangés, 194,000 acres; le maïs fourrager, 78,000 acres; le sarrasin, 47,000 acres; l'orge, 31,000 acres; le blé, 15,000 acres; le maïs à grain, 12,000 acres; les pois (secs), 3,000 acres; le lin (pour la graine), 1,900 acres; les haricots (secs), 1,500 acres.

Les cultures sarclées

Répandue par toute la Province, la pomme-de-terre est la plus importante des cultures sarclées. Les centres de production les plus considérables se rencontrent dans la région de Montréal, les comtés du Bas-Saint-Laurent et le district de la Gatineau.

Les plantes-racines: choux de Siam, navets et betteraves, occupent une étendue totale de 11,000 acres.

Dans la région de Saint-Hyacinthe, on ensemence chaque année 6,000 acres des terres argileuses en betteraves à sucre destinées à la raffinerie de Saint-Hilaire.

La production des légumes à destination des



beets for at Saint-Hilaire.
raves pour de Saint-Hilaire.



No onions grow here now. This farm, situated on the island of Montreal, has recently been swallowed up by the expanding city, but the owner has already reserved one hundred acres of muck soil in the Sainte-Clothilde district where he can double his production.

Il ne pousse plus d'oignons ici. Cette ferme, située en pleine Ile de Montréal, vient d'être absorbée par l'expansion urbaine. Mais le propriétaire s'est déjà réservé cent acres de terre noire dans la région de Sainte-Clothilde où il pourra doubler sa production.

counties of Napierville, Rouville, Saint-Jean, Châteauguay, Terrebonne and Iberville, account for two-thirds of the 52,000 acres in green peas, sweet corn, tomatoes, beans, carrots, lettuce, beets, onions, celery, cauliflower and asparagus (to name the vegetables in order of acreage). Although industrial and residential expansion in the metropolitan area has removed thousands of acres from cultivation, the loss is likely to be more than compensated for by the systematic development of 50,000 acres of muck soil in the counties just south of Montreal. Following the drainage operations carried out by the Quebec Department of Agriculture (at Sherrington and Ste-Clothilde) companies as well as private individuals have been attracted to this very fertile land. Here, the results of a sound agricultural method, based on research and carried out with the latest machinery, have already been proved.

The cultivation of pipe and cigar tobacco has long been practised on the best soils of Montcalm, l'Assomption and Rouville, the area in crop being about 6,000 acres. Flue-

marchés ou des fabriques de conserves se concentre autour de la Métropole. L'Ile de Montréal, l'Ile Jésus et les comtés de Napierville, Rouville, Saint-Jean, Châteauguay, Terrebonne et Iberville fournissent les deux tiers des 52,000 acres ensemencées en pois verts, maïs sucré, tomates, fèves, carottes, laitue, betteraves, oignons, céleri, choux-fleurs et asperges (nommés dans l'ordre de la superficie qui leur est consacrée). Si l'expansion industrielle et résidentielle de la région métropolitaine soustrait à ces cultures des milliers d'acres, l'utilisation systématique des 50,000 acres de terres noires dans les comtés situés immédiatement au sud de Montréal devrait plus que compenser cette perte. A la suite de travaux de drainage poursuivis par le Ministère de l'agriculture (Sherrington, Ste-Clothilde), individus et sociétés ont tourné les yeux vers ces terres éminemment productives. On y constate déjà les résultats d'une exploitation méthodique basée sur la recherche et aidée de la machinerie la plus moderne.

La culture du tabac à pipe et à cigare se pratique depuis très longtemps sur les meilleurs

cured cigarette tobacco, introduced into Quebec less than twenty-five years ago, now occupies an area of 12,000 acres of light sand hitherto considered useless. This type of soil is found principally in the counties of Joliette and Berthier. The danger of wind erosion has necessitated various protective measures such as planned clearing of timber, the growing of wind-breaks, and strip-farming or checker-board planting in rotation with fall rye for ploughing under. The case of flue-cured cigarette tobacco affords an excellent example of soil reclamation and conservation. It is also a good example of specialization, since the sale of this crop provides the majority of the planters with their only source of income.

Fruit

Apples from Quebec orchards have gained an excellent reputation. Commercial production is carried out mainly in Deux-Montagnes, Rouville, Missisquoi and Châteauguay. There are also considerable orchards in the neighbourhood of Quebec City. The apple crop has increased from 600,000 bushels in 1940 to the present total of 3,500,000 bushels. The most important of the small fruits grown in the province is the strawberry, with an annual crop value of \$1,500,000.

sols de Montcalm, L'Assomption et Rouville. On en produit environ 6,000 acres.

Le tabac jaune (*flue-cured cigarette tobacco*) fut introduit dans le Québec il y a moins de vingt-cinq ans. Il occupe aujourd'hui une superficie de 12,000 acres de sables légers considérés jusque-là comme inutilisables. Ces sols se rencontraient surtout dans les comtés de Joliette et de Berthier. Le danger d'érosion par le vent imposa diverses mesures de protection: défrichement dirigé, plantation de brise-vent, culture en bandes (*strip-farming*) ou en damiers en rotation avec le seigle d'automne destiné à l'enfouissement. Le cas du tabac jaune est un excellent exemple de récupération et de conservation des sols. C'est aussi un exemple parfait de spécialisation, la vente de ce produit demeurant l'unique source de revenu pour la plupart des planteurs.

Les fruits

Les pommes de nos vergers, McIntosh, Cortland, Lobo, etc., jouissent d'une excellente réputation. Leur production commerciale se poursuit surtout dans Deux-Montagnes, Rouville, Missisquoi et Châteauguay. On rencontre aussi des vergers considérables dans la région de Québec. De 600,000 minots qu'elle était en 1940, la récolte atteint aujourd'hui 3,500,000 minots.



The planter on the left derives all his income from growing flue-cured cigarette tobacco in the Joliette district. He watches every stage of the treatment with the greatest care.

Ce planteur du district de Joliette (à gauche) tire tous ses revenus de la culture du tabac jaune (flue-cured cigarette tobacco). Aussi, surveille-t-il chaque phase du traitement avec le plus grand soin.



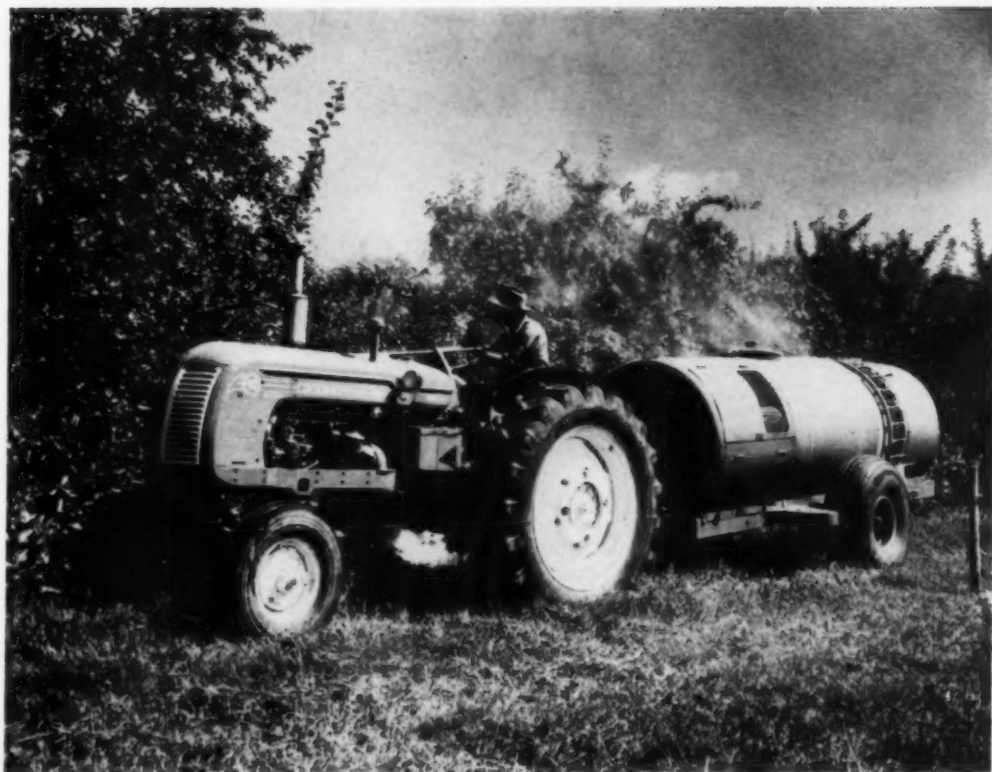
An apple orchard in full bloom.

Pommiers en fleurs.

Summer spraying at Oka in the county of Deux-Montagnes. There has been a fivefold increase in Quebec's apple production during the past twenty-five years. The reputation of the growers has risen too, thanks to constant vigilance.

Arrosage d'été dans un verger commercial à Oka, comté des Deux-Montagnes. La production des pommes s'est quintuplée depuis vingt-cinq ans, et la réputation des pomiculteurs québécois n'a fait que s'accroître, grâce à une vigilance de tous les instants.

175



Maple Products

In the production of maple syrup and sugar the province maintains unrivalled supremacy. Although the tradition of lively sugaring parties remains unchanged, the equipment has been modernized; tin pails and steel spouts have been replaced by aluminum, and methods of evaporation have been greatly improved. The income which this first harvest of spring brings to the farmers amounts to nine million dollars shared amongst 35,000 producers.

Livestock

Quebec holds first place amongst all the Canadian provinces in milk and butter production, and in cheese production it is only surpassed by Ontario, in spite of the fact that 42 per cent of all the milk is consumed as liquid. In 1956 (the last year for which complete figures are available) Quebec farms

Collecting maple sap. A campaign to persuade the producers to replace earlier equipment with pails and spouts of aluminum has been largely successful.

La cueillette de l'eau d'érable. Grâce à une campagne efficace, les producteurs ont en majorité remplacé leur vieil outillage par des seaux et des chalumeaux d'aluminium.



Parmi les petits fruits cultivés, le plus important demeure la fraise, qui rapporte environ 1,500,000 dollars annuellement.

Les produits de l'érable

L'érablière, voilà un domaine où la Province n'a vraiment pas de compétition. Si la tradition n'a pas changé des bruyantes fêtes à la "cabane", l'outillage, lui, s'est modernisé; les seaux de fer-blanc et les chalumeaux d'acier ont été remplacés par l'aluminium. Les méthodes d'évaporation ont gagné en efficacité.

Le revenu qu'apporte aux cultivateurs cette première récolte du printemps se monte à neuf millions de dollars, partagés entre 35,000 producteurs.

Les productions animales

De toutes les provinces du Canada, Québec garde le premier rang dans la production du lait et du beurre; sa production de fromage n'est dépassée que par celle de l'Ontario.

A sugar-bush in the county of Lotbinière towards the end of the season. Quebec is unrivalled in the field of maple products.

Une érablière du comté de Lotbinière, à la fin des sucres. Québec demeure sans comparaison dans le domaine des produits de l'érable.





Pure-bred Ayrshire cattle on excellent pasture in the county of Deux-Montagnes.

Troupeau Ayrshire de race pure sur un excellent pâturage du comté des Deux-Montagnes.

produced 6,209 million pounds of milk. This was consumed as follows: as milk, 261,000,000 gallons; butter, 122,337,000 pounds; cheese, 22,000,000 pounds; evaporated or condensed milk, 122,000,000 pounds; concentrated by-products, 51,572,000 pounds; ice-cream, 8,190,000 gallons.

Milk production for 1956 exceeded by 26 per cent the total for 1946, although the number of dairy cows was practically the same. The rapid improvement of the herds and methods of feeding has borne fruit. It is estimated that there are about one million head of milch-cows in the province. Dairy farmers give preference to the following breeds (in order of popularity): Holstein-Friesian, Ayrshire, Canadian, Jersey and Guernsey. Raisers of beef cattle (Shorthorn, Hereford, Aberdeen-Angus) are

Et cela, en dépit du fait que quarante-deux pour cent du lait soit consommé en nature.

Nos fermes ont produit, en 1956 (la dernière année pour laquelle on ait des chiffres complets) 6,209 millions de livres de lait qui a été écoulé comme suit: consommation en nature, 261,000,000 de gallons; 122,337,000 lb. de beurre; 22,000,000 lb. de fromage; 122,000,000 lb. de lait évaporé ou condensé; 51,572,000 lb. de sous-produits concentrés; 8,190,000 gallons de crème glacée.

La production du lait pour l'année 1956 dépasse de 26 pour cent celle de 1946, alors que le nombre de vaches demeurait sensiblement le même. L'amélioration rapide des troupeaux et des méthodes d'alimentation porte ses fruits.

On compte environ un million de vaches à

still comparatively few but their number seems to be gradually increasing.

About one million bacon-type hogs, averaging 200 pounds in weight, are delivered to the *abattoirs* every year. The shipments have remained at this level during the course of the past five years but the number of producers has dropped by 10 per cent to a total of 56,000.

Sheep-rearing is on the decline. The last census showed a total of 375,000 head or about half of what it was thirty years ago. The number of sheep-rearers has also declined in proportion.

Poultry

Poultry-keeping has always been popular. Up to the last few years there were very few farms that did not keep at least some hens for eggs and meat. Today poultry-keeping has been turned into a real industry. The production of broilers alone reached a total of twenty million last year. In the same period nearly ten million turkey broilers were put on the market, although scarcely three years ago these were an unknown commodity in Quebec.

Machinery

In the face of a dearth of farm help, mechanization has proceeded apace. It is significant that in five years—from 1951 to 1956—the number of tractors has risen from 31,900 to 54,000. The farmer is eager to try all the tillage equipment and all the labour-saving apparatus he can afford which may help him to raise production or lighten his work.

lait. Les éleveurs donnent leur préférence, dans l'ordre de leur popularité, aux races Holstein-Friesian, Ayrshire, Canadienne, Jersey et Guernsey.

Les éleveurs de bétail à boucherie, Shorthorn, Hereford, Aberdeen-Angus, sont encore peu nombreux, mais leur nombre semble augmenter graduellement.

Environ un million de porcs du type à bacon sont livrés à l'abattoir chaque année, à un poids moyen de deux cents livres. Les expéditions se sont maintenues au même niveau au cours des cinq dernières années, mais le nombre des producteurs intéressés a fléchi de dix pour cent, à 56,000.

L'élevage du mouton est en régression. Le dernier recensement donnait une population ovine de 375,000 têtes, soit la moitié de ce qu'elle était il y a trente ans. Le nombre des éleveurs a diminué dans la même proportion.

L'aviculture

L'aviculture a toujours été populaire; jusqu'en ces dernières années, rares étaient les fermes où l'on ne gardait pas au moins quelques poules pour la chair et les oeufs. Aujourd'hui, on en fait une véritable industrie. La seule production du poulet de grill a atteint le chiffre de vingt millions l'an dernier; en même temps, on mettait sur le marché près de dix millions de dindons de grill, un produit inconnu chez nous il y a à peine trois ans.

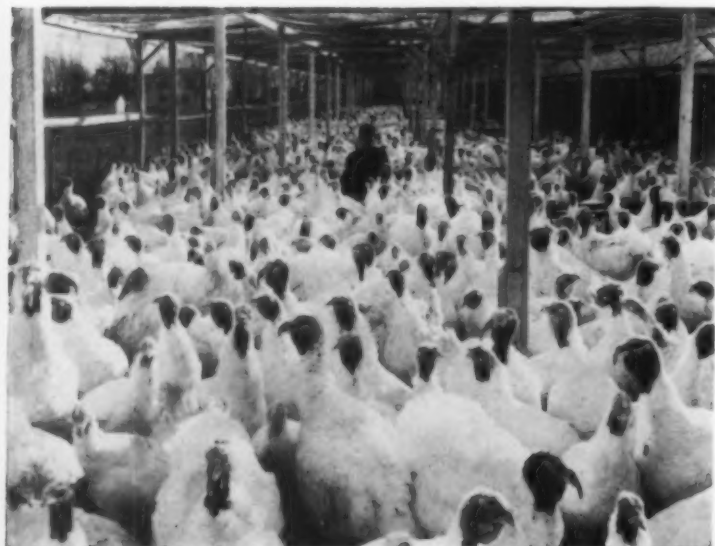
L'équipement

En face de la pénurie de main-d'oeuvre, la mécanisation se poursuit rapidement. Il est significatif qu'en cinq ans, soit de 1951 à 1956, le nombre de tracteurs soit passé de 31,900 à 54,000. Le cultivateur est anxieux, si ses moyens le lui permettent, d'essayer tout instrument aratoire ou tout appareil susceptible d'améliorer sa production ou d'alléger sa tâche.

L'électricité atteint aujourd'hui presque

Large-scale production of turkey broilers near Trois-Rivières. Unknown in the province four years ago, the industry marketed ten million birds in 1958.

Chez un grand producteur de dindons de grill, près de Trois-Rivières. Inconnue au Québec il y a quatre ans, cette industrie a mis sur le marché dix millions d'oiseaux en 1958.



Electricity now reaches nearly every farm. This is an achievement for which the Rural Electrification Board (set up by the Provincial Government) should receive its share of credit.

The Role of the Government

The agricultural population is the object of special attention on the part of the Provincial Government whose solicitude for rural well-being and development finds tangible expression in the entire work of the Departments of Agriculture and Colonization. The combined budgets of these departments at present amount to 44 million dollars and their function extends to all spheres: the establishment or consolidation of rural parishes, research, instruction, production, marketing, etc.

Thanks to the Rural Credit Board, established in 1936, the Quebec farmer can borrow at the exceptionally low rate of two and a half per cent for the purpose of consolidating his debts and making improvements. Repayments may be spread over a period of as much as forty years.

In order to protect the milk industry which is predominant in the agriculture of the province, the legislature passed a law in 1953 prohibiting the manufacture and sale of margarine, oleomargarine or any other substitute for milk products.

The creation in 1956 of the Marketing Board with power to sanction and expedite joint marketing plans has placed in the farmers' hands a legal implement capable of regulating and stabilizing the commerce in agricultural products.

toutes les fermes. C'est une réalisation pour laquelle l'Office de l'Électrification rurale (créé par le gouvernement provincial) doit recevoir sa part de crédit.

Rôle de l'État

La classe rurale est l'objet d'attentions particulières de la part de l'État. Le souci de son expansion et de son bien-être se concrétise dans les travaux de deux ministères du gouvernement provincial qui lui sont exclusivement consacrés, les ministères de l'Agriculture et de la Colonisation, dont les budgets combinés atteignent aujourd'hui la somme de 44 millions de dollars. Leur action s'étend à tous les domaines: établissement ou consolidation des paroisses agricoles, recherche, enseignement, production, marchés, etc.

Grâce à l'Office du Crédit Agricole, dont la création remonte à 1936, le cultivateur québécois peut emprunter, pour consolider ses dettes et améliorer son exploitation, au taux incroyablement bas de deux et demi pour cent et étendre les remboursements sur des périodes allant jusqu'à quarante ans.

Afin de protéger l'industrie laitière qui domine toute la production agricole du Québec, la Législature a voté, en 1953, une loi prohibant la fabrication et la vente de la margarine, de l'oléomargarine et de tout autre succédané des produits laitiers.

La création, en 1956, de l'Office des marchés, avec pouvoir de faciliter et de sanctionner les plans conjoints de mise en marché, place entre les mains des cultivateurs un outil juridique susceptible d'ordonner et de stabiliser le commerce des denrées agricoles.

Quebec maintains her reputation in bacon production. Every year a million hogs go to market.

Québec soutient sa réputation dans la production du bacon. Chaque année un million de porcs sont livrés au marché.





Afforestation Brings Wealth to Swaziland

by LYN HARRINGTON

Photographs by
RICHARD HARRINGTON

AFFORESTATION has changed the face of Swaziland in the last decade, and the pattern of land-use in this British protectorate. High hilly country, Swaziland is perched between the Union of South Africa and Portuguese East Africa, and covers 6,704 square miles, about the area of Wales.

A spectacular afforestation program on its peaks and in its valleys proceeds at the rate of 18,000 acres yearly. Since the forests grow throughout the year and have abundant rainfall and sunshine, the growth of introduced varieties of trees is amazing.

The contrast between these undulating forests sweeping up to the sky and the bare grasslands is very marked. Like most African countries, Swaziland has been burned over annually to produce green winter forage for native livestock. The result was erosion of the high slopes and a dearth of trees and shrubs. Grass fires are now controlled, and the vast forest plantations act as catchments for the fertile lands below and for valley irrigation schemes.

Land-locked Swaziland rises from the Low Veld at 500-1,500 feet, to the Middle Veld, at about 2,000 feet with heavier rainfall, up to the High Veld running up to 6,000 feet and with a fifty-five-inch rainfall. The lowlands are suitable for seasonal grazing. The middle level is very fertile; there rice grows under irrigation, and sugar-cane flourishes, along with pineapple, citrus fruits and many other crops.

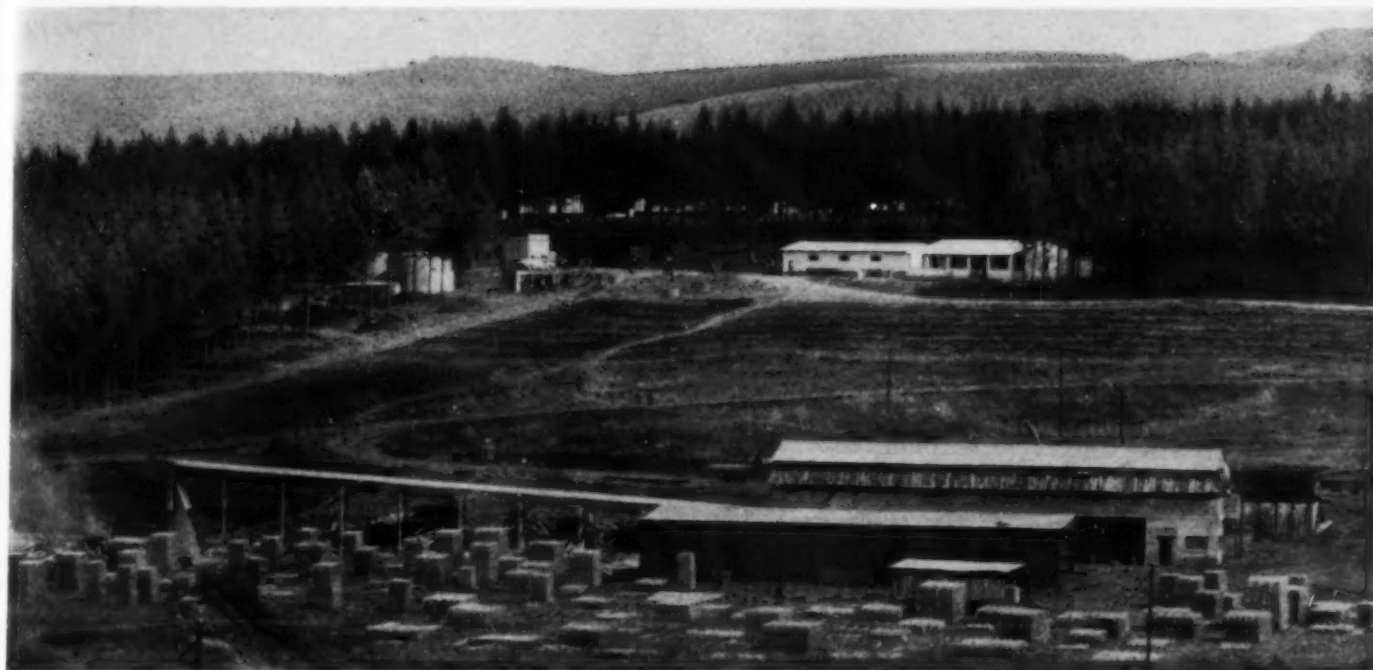
The High Veld is now being clothed in

plantations of eucalyptus, wattle, and pine of several species. The blue gums were planted first, and did well, but pines grew even faster. With its multifarious uses, *Pinus patula* is the chief tree in the planting program, with *Pinus caribaea* far behind. Pines are set out at nine-foot intervals and later thinned to about 200 trees to the acre, and in this region, they mature in thirteen years.

Wattle, a member of the large acacia family, was originally grown merely for its bark, from which a black dye is extracted. Although the price has wavered recently, Swaziland exported \$129,920 worth of bark in 1955, over half of it produced by African farmers. Thinnings are barked at four years, and the trees mature at eight. The Swazis have both a cash crop and excellent firewood in these timber stands. Research has proved the wattle wood suitable for box manufacture and mining timbers, and for use in wallboard, paper and rayon pulp.

The Government of Swaziland leaves forestry to private companies and to the Colonial Development Corporation, except for a nursery which produces seedlings for African and European farmers. Since 1947, immense plantations of *Pinus patula* have been set out on the hills of Swaziland. One private company, Swaziland Plantations Limited, has over 10,000 acres, and the largest tree nursery in the southern hemisphere. Peak Timbers, oldest lumber company in Swaziland, has some 60,000 acres planted to trees. Most of its *Patula*

At top:—Most of the Swazis live in grass-thatched beehive huts, which cannot be entered without stooping. A genial gentle folk, the Swazis are gradually leaving their primitive ways, but this type of housing is prevalent among the peasant farmers.



A small mill which produces wallboard and lumber. This is the first of ten such mills to be built in forest plantations.

pine becomes wallboard in the first of ten projected mills, but the company also handles regular lumber products.

The largest afforestation project in Africa is Usutu Forests of the Colonial Development Corporation, begun in 1949. The corporation purchased some private holdings, and is afforesting 90,000 of its 111,000 acres. The remainder is in roads, housing developments, and farms to supply its workers.

About half of the protectorate has been reserved or purchased for the benefit of the native population. While the individual farmer may have small plantings of wattle for bark and fuel, the Swazi National Council has large

resources. In an exchange of land, Peak Timbers presented the Swazis with 400 acres of forest, undertaking to maintain this until it reached the exploitation age.

Similarly, the Colonial Development Corporation undertook to plant and maintain 3,500 acres of pine forest on behalf of the Swazi nation. On maturity, the corporation will deduct its expenses and turn over the balance from timber sales to the National Council.

Afforestation has brought employment to thousands of Swazis, and rehabilitation of farms to thousands more. It has literally created wealth where none existed previously.

Entering Swaziland from the Transvaal, bare hills give way to forested slopes, as shown in the photograph. With a continuing program of planting 18,000 acres each year, trees are fast changing the appearance of the countryside.





A fisherman's boat at Letite.

Place of Pollock:

The Passamaquoddy Bay

by ESTHER CLARK WRIGHT

Photographs by the author, except where credited.

WE WERE waiting on the wharf at Letite for the ferry to Deer Island. A boat full of fish heads lying beside the wharf aroused our curiosity. What kind of fish were they? Pollock, we were told. What were they used for? They were going to feed the lobsters in the pound on Deer Island. How much did the boat owner get for the fish heads? A cent a piece.

It was all very typical of Passamaquoddy Bay, the mainland and the islands—the government ferry with its uncertain timing, the fisherman's boat, the humble, native pollock heads at a cent a piece intended for the consumption of the gilded lobsters, the creatures that can be trapped for two months only and who must have very special facilities for their reception, their provisioning, their entertainment, and their travel.

Pes-kut-um-a-quah-dik, Place of Pollock, the Indians said of the area between Deer Island



Handline operation

and Campobello. The French and the English, writing the name in various forms, transferred it to the whole of the bay. The largest of the islands, Grand Manan, marks the entrance from the Atlantic to the Bay of Fundy. Campobello and the Wolves, with Moose Island, Deer Island, and other staunch supporters in the rear, cut off Passamaquoddy Bay from the Bay of Fundy. The result is an extraordinary maze of

Bay
RIGHT
here credited.

channels and tide-rips, which alone would make Passamaquoddy unique and fascinating. But in addition there are the islands and the island folk, the villages and the fishing fleets, the spruce-clad hills and the moss-covered rocks, the carefully constructed lobster pounds in salt-water bays and the towns founded in the eighteenth century.

The deep inlets and shallow coves, the many rivers and the ridges of the mainland, the dual allegiance of the area, the involved relation-

PLACE OF POLLOCK: THE PASSAMAQUODDY BAY

traceable through the woods, in old forms of life uncovered when the tide is at its lowest ebb.

Physically and historically the St. Croix River dominates Passamaquoddy Bay. Westward lies only the Cobscook, which loses its identity in the ramifications of Cobscook Bay. Eastward, the Bocabec, the Digdeguash, and the Magaguadavic flow into a wide cove, for which the Indians had a separate name. In recent years, Cobscook has assumed new importance as the Lower Pool of the proposed Quoddy power scheme. Into it, through the turbines of the power house, the water is to drop from the 100 square miles of the Upper Pool, the estuary of the St. Croix and the wide cove into which the Bocabec, the Digdeguash, and the Magaguadavic flow. Dams from Deer Island to Moose Island and from Deer Island to the mainland near the Letite ferry, would thus shut off Passamaquoddy Bay from the Place of Pollock of the Indians, between Deer Island and Campobello.

One has only to stand on the southernmost tip of Deer Island or on the northern point of Campobello, beyond Head Harbour, and watch



ine operati maquoddy Bay.

N.B.T.B.

ships, international, intraprovincial and intrastate, coastwise and inland, industrial and occupational, make the Passamaquoddy region different from any other. It is a place where the past is always present, in the names bestowed so long ago, in the boundary line, not seen but forever obtruding, in long buried secrets exposed by today's storms, in kitchen middens along the shore, in old paths still

Boats in Deer Island harbour.

N.B.T.B.

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Fishermen setting nets off the Grand Manan coast.

N.B.T.B.



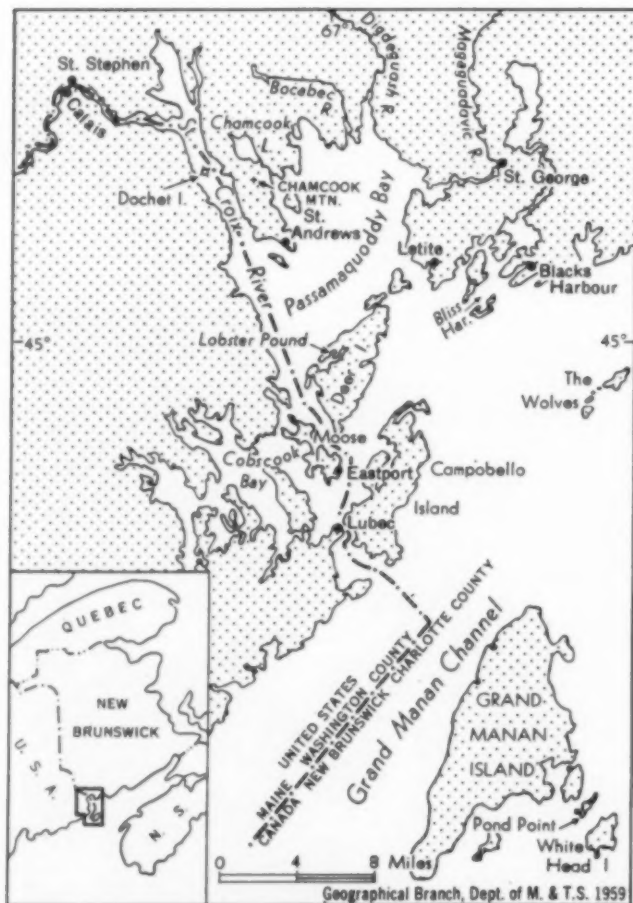
Niger Reef from Ro

the tide swirl through narrow passages to get some idea of the strength of the tidal currents which ebb and flow around Passamaquoddy Bay. But is this the only way to take advantage of this power, to build costly dams from point to island, from island to island, from island to

mainland, to make Passamaquoddy Bay above Deer Island forever at high tide and Cobscook Bay forever at low? There would seem to be need for more inventive and imaginative means of harnessing the tides, without dams and surely without turning Passamaquoddy Bay into an inland lake.

For a generation the Quoddy project has been among the lost causes of the Passamaquoddy Bay region. It is a place where many things have been lost — causes, settlements, history, even the bay itself. One moment, Passamaquoddy Bay will be blue in the sunshine, the islands will stand out clear and near; the weirs off-shore and the wooded hills, the purple rocks and the white and gray gulls, all the familiar sights, will be there. An hour later they are gone. The fog has shut down, and only the regular booming of the fog-horn, the occasional bleat of a steamer groping its way to an unseen wharf, the cries of the gulls, tell that Passamaquoddy Bay still exists.

The fog and the tide, the swirling currents and jagged rocks, the isles and islets and ledges, have caused the loss of many ships, large and small. At the time of the Saxby Gale, on the morning of 4 October 1869, the *Rechab* was blown from side to side of Bliss Harbour and smashed to pieces. The *Rechab* had been a pilot schooner at Saint John, and had been used in 1850 for a mysterious cruise to Turks Islands, north of Haiti, in search of pirate treasure sup-





er Reef from Road, St. Andrews.



Low tide at the lobster wharf, St. Andrews.

posed to be buried on Sand Cay. A series of gales, in December 1856 and January 1857, at first prevented the *Lord Ashburton*, a ship of 1,000 tons, bound from Toulon to Saint John, from entering the Bay of Fundy, and then, after she had come within sight of Partridge Island, blew her helpless down the bay and against the cliffs at the northerly tip of Grand Manan. Only seven of the crew reached shore, and one, a young Dane, climbed the 300-foot cliff to the top.

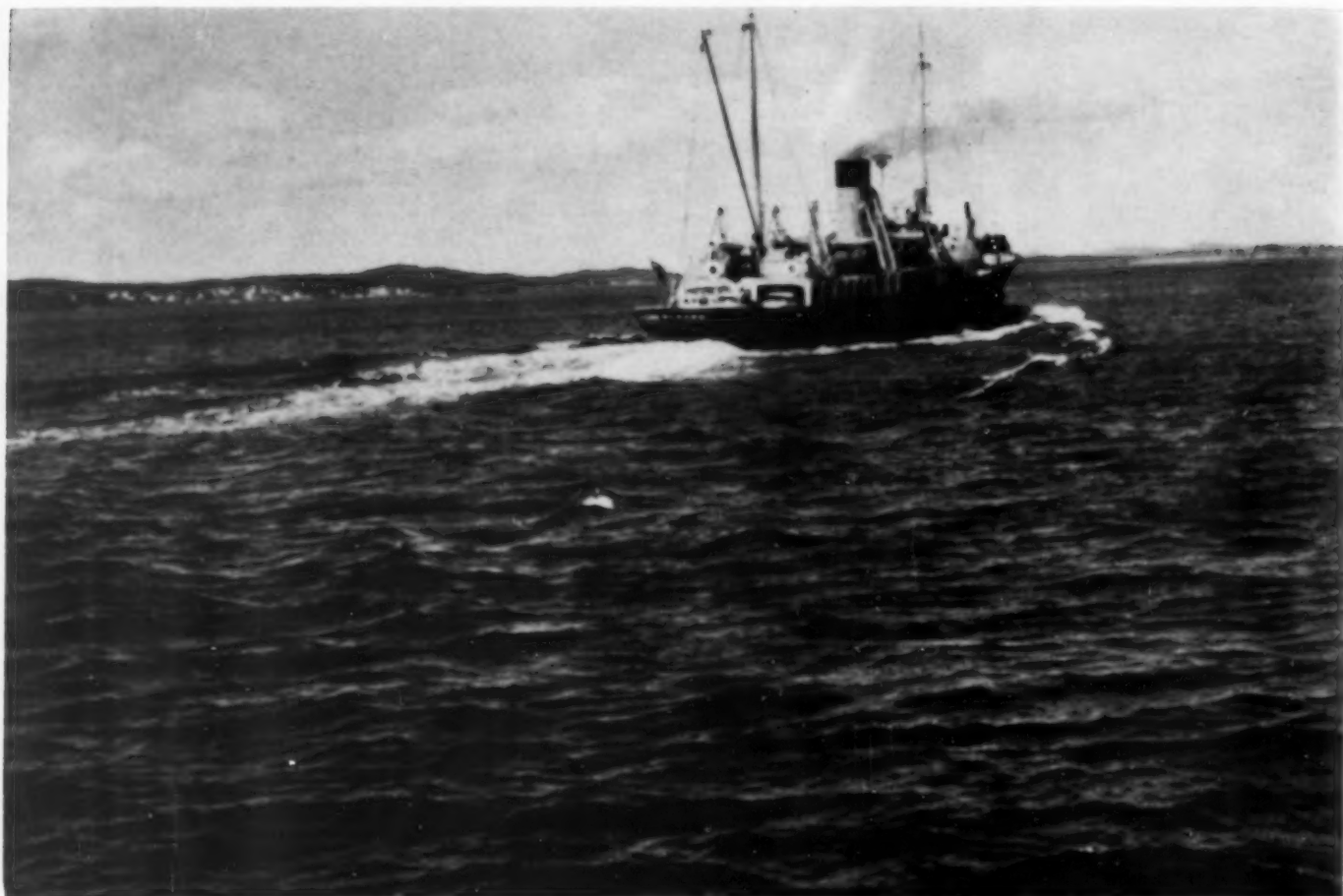
Every part of Passamaquoddy Bay has its tales of vessels lost or nearly lost. In 1907, white whales, the narwhal, were reported plentiful on the Ripplings, off Grand Manan. Two fishermen nearly shared Jonah's fate; they were casting nets when a whale took them, boat and all, into its mouth. Another man reported a whale passing beneath his boat so terrified him that he could feel his hair lifting his hat. That same autumn, the *St. Croix Courier* reported the finding in Pond Point Weir of a twenty-foot shark within which was a sewing machine lost between White Head and another island.

Among the Indians of the Passamaquoddy Bay region there persisted a tale of lost men, of white men who had come in times past and had disappeared into the earth. Could these have been the Norsemen who sailed in the year 1006 to a "coast indented with bays" and brought their three ships to an "island in

the mouth of the bay about which there were strong currents"? For three years they lived on the island and explored the land round about, which was fair to look upon. There were mountains, they said, and at once we are standing on Deer Island, looking across Passamaquoddy Bay to the chain of hills between the Magaguadavic and the Digdeguash, to the ridges that stand above the Bocabec, to Chamcook Mountain rising above Chamcook Lake and the St. Croix River, to the blue hills beyond the St. Croix.

Whether it was the Norsemen or Portuguese explorers or Basque or Breton fishermen who were the first Europeans to sail into Passamaquoddy Bay, the records of its discovery have been lost. Champlain's is the first account of the region, and his story of the tragic winter of 1604-05 on the island in the St. Croix River is well known. As a result, the French were lost to the Passamaquoddy, although fishermen continued to come and go, and the Sieur St. Aubin was credited, in 1703, with having worked with diligence to increase the value of his Seigneurie of Passamaquoddy and with having settled tenants upon it. Nevertheless, there was no permanent Acadian settlement, and Champlain's name for the river and traces of French occupation disappeared during the eighteenth century.

When, in 1783 and 1784, those adherents of a lost cause, the Loyalists, came to Passama-



Place of Pollock. The Grand Manan leaving Campobello. Deer Island in the distance.

quoddy Bay and set themselves down on the Schoodic, in St. Andrews at its mouth, and in St. Stephen, at the fishing falls, the Americans tried to claim the land east of the Schoodic. They insisted that the Magaguadavic, not the Schoodic, was the St. Croix of 1604. The Indians obligingly agreed with the Americans that the Magaguadavic was the river on which the French had spent the winter, and with the British that the Schoodic was the river. Something in their testimony led Ward Chipman to suggest to Robert Pagan of St. Andrews that excavations should be undertaken on the larger of the two islands in the St. Croix. The digging uncovered traces of the settlement Champlain had described; the Boundary Commissioners were convinced; St. Andrews and St. Stephen and the land east to the Magaguadavic remained in New Brunswick. More recently, the wearing away of the island revealed more bones of the scurvy victims of that sad winter. After

picnicking on the beach one summer day, we scrambled around the cliffs and the depressions in the fields above, but were unable to find any further grisly souvenirs.

Among the Loyalists from the Penobscot who founded St. Andrews, there were several enterprising traders who set to work at once on development of trade with the West Indies. "Altho' the first of our Settlers only arrived here in October last," wrote Robert Pagan, Colin Campbell, William Gallop, and Jeremiah Pote, on 26 May 1784, "yet we have already sent a number of Cargoes of Lumber to the West Indies and several ports in Nova Scotia, and as more Saw Mills are now erecting our Exports of Lumber will rapidly increase." The West Indies trade and the pre-eminence in shipping and shipbuilding which St. Andrews enjoyed were lost to Saint John, during the course of the nineteenth century.

Another lost cause was the St. Andrews and

PLACE OF POLLOCK: THE PASSAMAQUODDY BAY

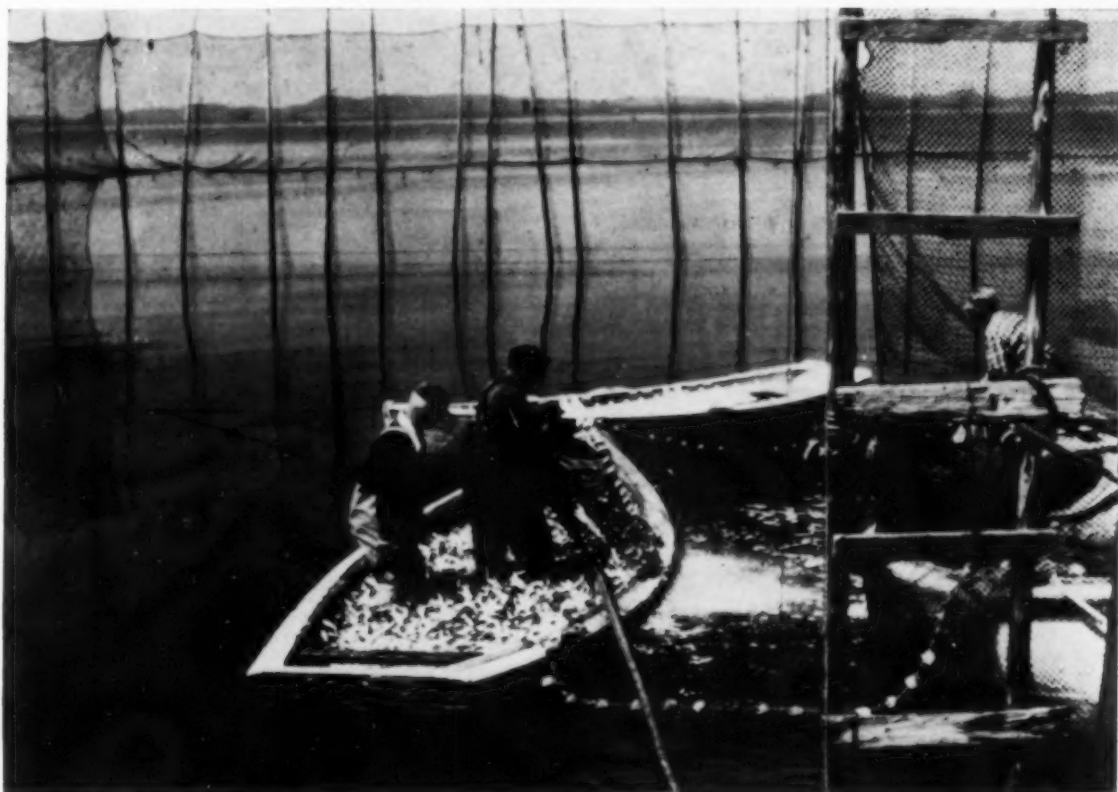
Quebec Railway, an ambitious project for which an association was formed on 5 October 1835. Unfortunately, the 260-mile route passed through territory then in dispute, and a protest from the United States Government to Great Britain put a stop to the undertaking. In 1845, it was revived, a subscription list was opened, and the act of incorporation was obtained in 1846. The building of the line proceeded very slowly, and it was not until 1862 that the line reached Richmond on the Woodstock-Houlton road. Two or three branches were built, but the ultimate fate of the railway was to be taken over by the Canadian Pacific as a feeder for its main line from Saint John to Montreal.

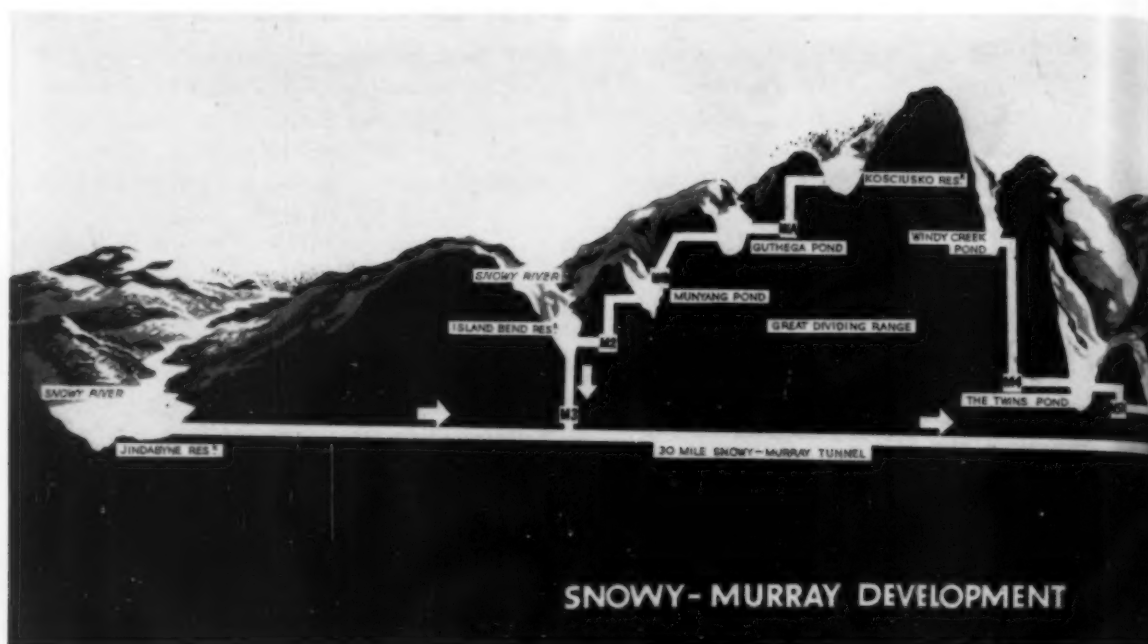
All around the shores of Passamaquoddy Bay there are indentations, coves and bays, where those who wish to do so may lose themselves very happily the summer through. There are rocky points where moss and barnacles cling; there are sand-bars up which the tide creeps; wild roses and rock cranberries abound along the shore; the woods are full of treasures and

surprises. From a boat, at high tide, one may drop lines for flounders. When the weirs are seined, the sardine boats toss aside mackerel and cod and haddock, and why should gulls be the only creatures present on those occasions?

The network of roads in Charlotte County provides an opportunity for the motorist to lose himself, where moose and deer, partridge and bear, are not uncommon sights, where forgotten settlements and mill sites, abandoned farms and neglected houses, are not unknown, where trout streams and unnamed lakes lie hidden. When the motorist has almost given up hope, he will come out on a ridge, the countryside will open out, and in the distance he will see Passamaquoddy Bay, with its wide inlets and its tortuous channels gleaming among the islands and the almost-islands that ring it round. Among the boats, far away and tiny, there may be one that has been to the Place of Pollock and is taking pollock heads to the lobster pounds for the delectation of those important crustaceans, the lobsters.

Seining the sardine weirs off Deer Island.





The Snowy Mountains Scheme

by H. STEWART HAY

S.M.H.E.A. official photographs

COURAGEOUS VISION is being shaped into reality as men and machines push forward with Australia's Snowy Mountains power and irrigation scheme. In size and complexity it may be compared to our St. Lawrence Seaway project, with some problems akin to those of Kitimat. It is the most ambitious scheme ever undertaken in Australia and one of the largest of its kind anywhere in the world.

Over one-third of Australia receives a desert rainfall of only ten inches or less a year. The result is a chronic shortage of water for crops and power. More water, if it were available, would return bountiful dividends in the form of increased food crops and other primary produce. The most extensive irrigation works are in the valleys of the Murray-Murrumbidgee River system which flows through the dry but fertile plains of New South Wales and Victoria. However for lack of sufficient water, the full potential of these irrigation works is not being realized.

Industrial development is often correlated

with *per capita* consumption of electricity. But in Australia, *per capita* electricity consumption lags significantly behind that of certain other industrial powers (it is only about one-third of Canadian *per capita* consumption) and this is holding up industrial expansion. The country's current rate of development will, in seven or eight years, increase power requirements to twice those at present. New sources must be found.

In the south-eastern corner of the island continent the Australian Alps rise to over 7,000 feet and are snow-covered for five to six months of the year. Four rivers carry away the run-off: three to the west, and the fourth, with the largest share, to the south-east for a short run through the coastal plains to the Tasman Sea. This is the Snowy River, and its waters, along with those of its tributaries, are virtually wasted. The Snowy Mountains scheme is designed to divert these waters westward through trans-mountain tunnels and put them to work for irrigation. As they fall, vast quantities of power



This longitudinal cross-section of the Snowy-Murray development shows how the waters of the Snowy and its tributaries are being diverted through tunnels to the floors of the western valleys, 2,000 feet lower.

will be generated by a series of underground power-stations. Other tributaries will be fed into the scheme as they are led into main storage reservoirs or dropped vertically for hundreds of feet through the earth to underground diversion tunnels.

Proposals for utilizing the waters of the Snowy River date from 1884 but not until the Second World War was effective action initiated. In 1949 a hydro-electric authority was established by the Snowy Mountains Hydro-Electric Power Act. Work began on the scheme in 1951 and the date set for completion of the final phase is 1975. Irrigation waters will be made available without charge, although the capital costs of the irrigation works are estimated at £A60,000,000 (\$132,000,000)*. The estimated cost of the whole project is £A422,000,000 (\$928,400,000) and the final costs with accrued interest some thirty-five to forty years after completion could be as much as £A1,200,000,000 (\$2,640,000,000). The scheme will be financed *in toto* by revenues from the sale of electricity. It will ultimately provide an additional 1,000,000 acre-feet of water annually to the Murrumbidgee River in New South Wales and another

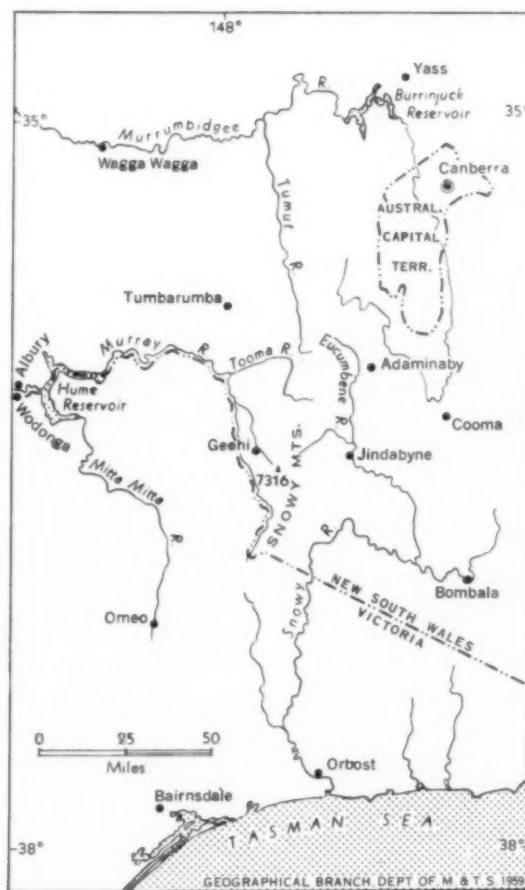
*Approximation in Canadian dollars.

THE SNOWY MOUNTAINS SCHEME

800,000 acre-feet annually to the Murray River, to be shared equally by New South Wales and Victoria. All this additional water will mean pasture for millions more sheep and thousands more cattle. It should equal the requirements of 5,000 farms and result in an increased annual production valued at £A30,000,000 (\$66,000,000).

When completed, the power-stations will generate a total of three million kilowatts of power, or six billion kilowatt hours of energy annually. Many of Australia's existing power-stations are militarily vulnerable, because they are on or near the coast. The Snowy Mountains power houses will be dispersed throughout a remote area and most of them will be covered by hundreds of feet of solid rock. Water storage will be sufficient to provide for twenty-four hour a day operation over extended periods if other stations should be put out of action.

As currently envisaged, the scheme will consist of seven major dams; fifteen (or



Top right:—The Guthega power-station, built by a Norwegian firm, was the first part of the vast Snowy project to be completed. Turbines for this station came from the United Kingdom.

possibly seventeen) major power-stations; eighty-three and a half miles of tunnels up to thirty feet in diameter, with vertical shafts to a depth of 1,100 feet; 330 miles of mountain aqueducts and several hundred miles of mountain roads. In addition it will be necessary to enlarge the storage capacity of the Hume reservoir downstream on the Murray River by 500,000 acre-feet.

The scheme has two distinct sections. The first is the Snowy-Murray phase involving diversion of the Snowy River into the Geehi and then the Murray River. The main features of this phase are a large dam and reservoir on the eastern slopes, possibly necessitating relocation of the town of Jindabyne, and a thirty-mile tunnel under the mountains. Subsidiary developments are planned for the Upper Snowy and Geehi Rivers and some of these are already in operation. Second comes the Eucumbene-Tumut project, involving diversion of the Upper Murrumbidgee, the Tooma and the Eucumbene Rivers into the Tumut River, a tributary of the Lower Murrumbidgee. On this

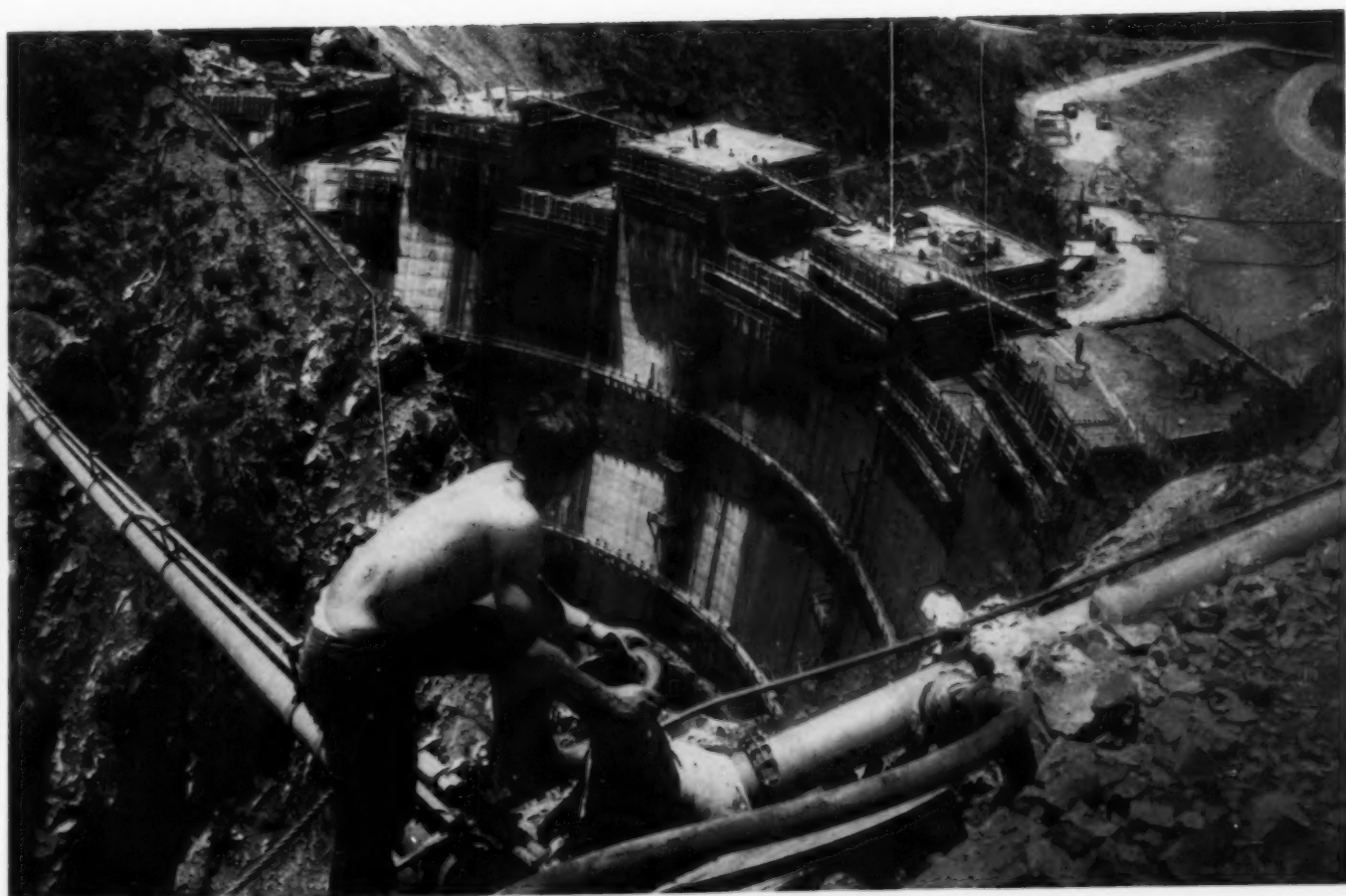
phase the massive earth-fill Adaminaby dam has been finished and Australia's largest eventual reservoir is slowly filling. Other dams and many miles of tunnels have been completed and two giant underground power houses will soon be in operation.

The Snowy Mountains Authority has built the roads, camps and other facilities to serve the entire scheme. It has shared in the major design work, and in the installation of switch-yard and transmission lines and generating equipment. However, most of the major construction and equipment contracts are being carried out by private firms. Many overseas companies from the United Kingdom, the United States, and several European countries are actively interested in various parts of the vast Snowy scheme. It may be that Canadian engineers, contractors and suppliers, with experience in similar great projects such as Kitimat and the St. Lawrence Seaway, will be able to participate in this immense power and irrigation scheme of a sister member of the Commonwealth.

Bottom right:—The Tumut Pond dam, pictured under construction, is one of the seven major dams included in the Snowy project. Built of concrete, it rises to a height of 290 feet.

Below:—Work proceeds on the great Adaminaby dam, now finished, behind which over 3.86 million acre-feet of water are to be stored. It is the major reservoir in the Snowy scheme.



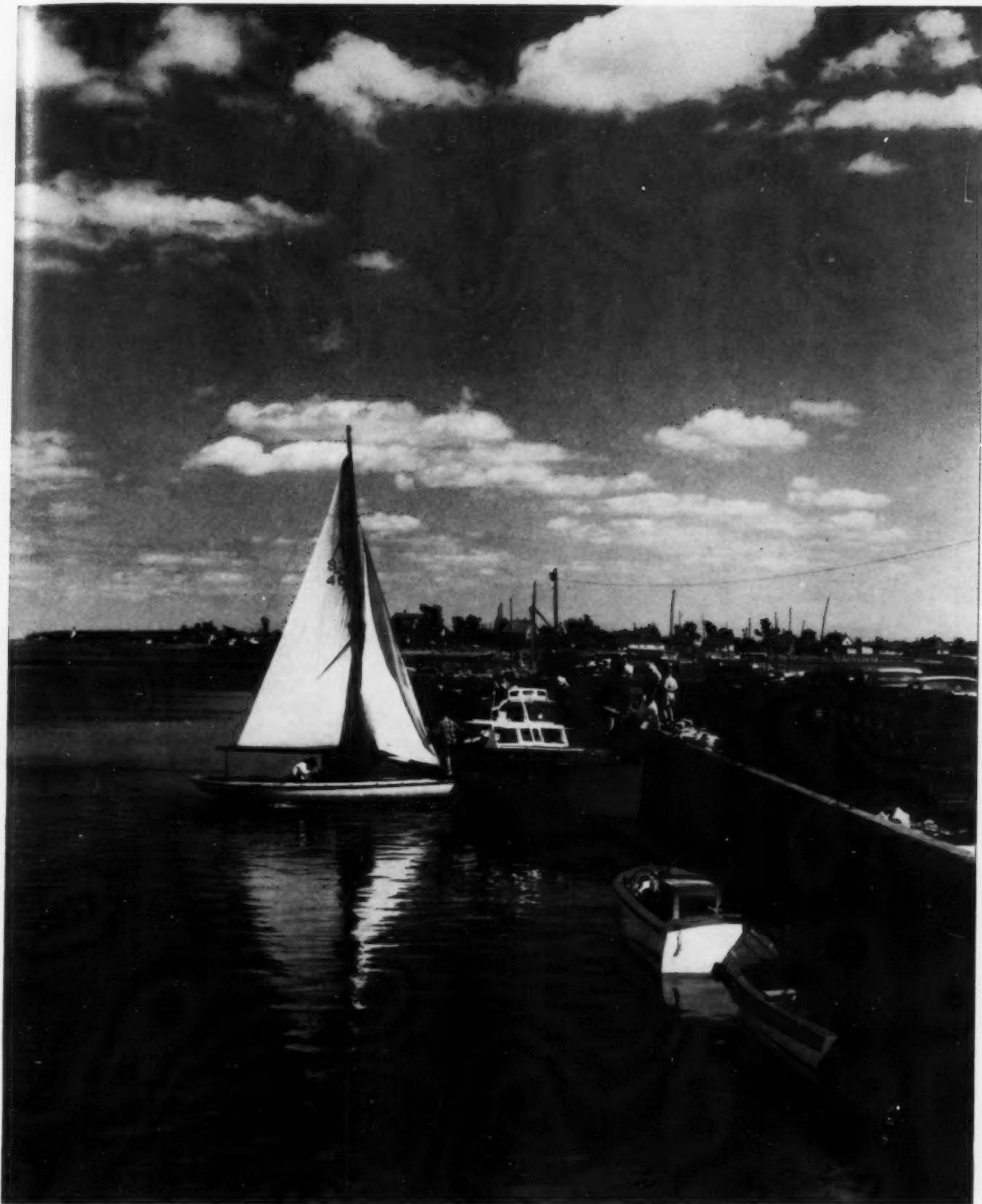




***Pictures of the
Provinces—XVIII***

A bend in the road adds new artistry to this hill-top view of the orchard district surrounding the village of Osoyoos, British Columbia. Anarchist Mountain, in the background, in earlier days looked down on a trading post but times have changed with the coming of irrigation and a highway.

B.C. Government



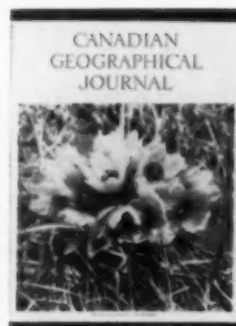
The wharf, its inevitable lobster pots preparatory to the advent of the lobster season, water and water-craft of many shapes and fashions, and always people, present the nostalgic maritime setting. This scene near Shediac, New Brunswick, will be viewed by Her Majesty Queen Elizabeth and Prince Philip this summer.

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EDITOR'S NOTE-BOOK

René Trépanier (*Modern Trends in Agriculture: A Glance at Rural Quebec and Coup d'œil sur le Québec agricole et son orientation*) is Deputy Minister of Agriculture in the Province of Quebec. He holds a B.S.A. degree from the Institut agricole d'Oka and an honorary doctorate of veterinary medicine from the Université de Montréal. He is a former president of the Quebec Pomological Society and a member of la Corporation des agronomes, the Canadian Belgian Horse Association, and the Ayrshire Breeders Association of Canada. His farm at Oka, known as "Mille-Roches", is noted for its herd of Ayrshire cattle, its stud of Belgian horses, and its apple orchard. He is well known, as a judge and exhibitor, at the Royal Winter Fair, the Canadian National Exhibition, the Chicago Livestock Show, the National Dairy Show, and the Waterloo Dairy Congress. In 1944 he was elected mayor of Oka and appointed Deputy Minister of Agriculture in the provincial government.

* * *

Lyn Harrington (*Afforestation Brings Wealth to Swaziland*) is a Toronto writer who spends much of her spare time travelling in Canada and to other parts of the world. With her husband, photographer Richard Harrington, she has contributed articles and pictorial features to the Journal and other publications.

* * *

Esther Clark Wright (*Place of Pollock: The Passamaquoddy Bay*) has written many books on the subject of her native province New Brunswick. She received her early education in Fredericton and later attended the universities of Acadia, Toronto, Oxford, Stanford and Radcliffe. After a period in the United States she returned to Canada where she obtained a post as lecturer in sociology at Acadia University, 1943-7. Dr. Wright now lives in Ottawa.

* * *

H. Stewart Hay (*The Snowy Mountains Scheme*) joined the federal Department of Trade and Commerce as a Foreign Service Officer in 1956 and in the following year was posted to Sydney, Australia, as Assistant Commercial Secretary in the Canadian Embassy. A native of Saskatchewan, he attended the University of Saskatchewan, from which he received his B.A. degree, and the University of Texas, from which he received his Master's degree.

OBITUARY

Dr. Arthur Beauchesne

It is with profound regret that we have to record the loss of Dr. Arthur Beauchesne, C.M.G., Q.C., a vice-president of our Society, who died in Ottawa on April 7th.

Dr. Beauchesne was born in Bonaventure County, Province of Quebec; he studied law at Laval University, and was called to the bar of Quebec in 1904, becoming legal adviser in the Department of Justice at Ottawa in 1913. In 1925 he was appointed Clerk of the House of Commons, and held that post until his retirement in 1949. In this capacity he was not only adviser to leaders both of the Government and the Opposition but was also in command of the 600 members who make up the staff of the House of Commons.

Early in his career he came to be recognized as a leading exponent on correct parliamentary procedure. His three books on the subject are always consulted when authoritative opinion is needed.

His interests were very widespread, and he lent his active support to many cultural institutions both English and French. Dr. Beauchesne was appointed a director of the Society shortly after its inception in 1929 and served faithfully and with distinction for thirty years as a member of the Board of Directors representing the Province of Quebec.

In the New Year's honours list of 1934 he was named a Companion of the Order of St. Michael and St. George.

We offer our most sincere sympathy to his twin daughters, Mrs. James Forbes of Ottawa, and Mrs. Ronald Walsh of Cortland, N.Y., and to other members of his family.

* * *

AMONGST THE NEW BOOKS

The Glacial Map of Canada

(The Geological Association of Canada, Ottawa. \$2.00)

The immensity of the continental ice sheet which covered most of Canada during Pleistocene glaciation is well shown by the new Glacial Map of Canada. This remarkable mass of ice modified the landscape and supplied a variety of materials from which the great diversity of



THIS FISH has been killed by the lamprey that still clings to it. Lampreys have caused collapse of lake trout stocks in two Great Lakes, now threaten a third. But under the Great Lakes Fishery Commission the Department of Fisheries of Canada, through the Fisheries Research Board, and the United States Fish and Wildlife Service have joined forces to meet and beat the lamprey menace.



Murder threatens an industry

IN LAKES HURON AND MICHIGAN lake trout stocks have collapsed. Sea lampreys, grey-black eel-like creatures that feed on the blood and body juices of fish, have been the main cause. Now lampreys are in Superior—another Great Lake is threatened.

To find a solution to the lamprey menace, Canada and the United States have joined forces in the Great Lakes Fisheries Convention. Scientists of both countries are striving to find ways of keeping the lamprey under control. Already, extensive field work is being carried out in northwestern Ontario waters.

A great deal of experimentation and research has still to be done before the lake trout fishery in the Great Lakes can be saved and restored. But this work is being carried out as quickly and efficiently as humanly possible.



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by Georges Caspari

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The Alpa's reflex viewing system gives you the arrogant satisfaction of knowing for certain beforehand that your photos, and especially your color photos, will be successful! On your camera's ultra-fine groundglass, a magnified image springs to life (in the words of a big-game hunter "it leaps out at you"), your framing is precise and the color simply floods in, whether your subject is a floral bouquet, the multi-colored splendor of a peacock's fanned tail, or the radiance of the special someone who makes you see everything rose-hued.

The Alpa's reflex system is all the more up-to-the-minute since it is

served by a splendid range of 13 lenses, all instantly interchangeable and nearly all equipped with *fully automatic preselective diaphragm*, that starts you off with a *technical advantage* second to none in modern photography. With a range that covers the field completely from the 24-mm wide angle to the 360-mm telephoto lens, Alpa offers you a unique equipment capable of dealing with any photographic problem from the commonplace to the most complex.

For general use, the Alpa Reflex 35 mm is normally supplied with either the 50-mm Switar f/1.8 or with today's wonder lens, the 50-mm Macro-Switar f/1.8, which has made history as the only lens to offer *fully automatic* preselection of the diaphragm *plus* continuous focusing from infinity down to 7 in., together with Visifocus depth-of-field control!

All things considered, it is not surprising that it should be Swiss watchmakers — acknowledged experts on the passage of time—who created the Alpa... to capture and record for you moments of rare beauty in all their vivid freshness.

* The Alpa 6, "the Swiss watchmakers' camera", is made by Pignons S.A., at Ballaigues (Switzerland); the camera is shown here fitted with its "normal" lens, the Macro-Switar 50-mm f/1.8, which offers you continuous focusing from infinity down to 7 inches from your subject.

Canadian Distributors: Photographic Stores, Ltd., 65 Sparks Street, Ottawa, Ont.

Canadian soils was derived. These facts are appreciated by professional people in many fields, including geology, geography, pedology, soils engineering, and forestry. It is to be hoped that this new map will bring about an increasing awareness on the part of laymen of geologic factors in our environment. The map presents factual information, attractively, in a relatively non-technical way. Its appearance during the International Geophysical Year, when extensive ice studies are being made throughout the world, is very appropriate.

The main map is on a scale of one inch to sixty miles and shows, by means of several colours and symbols, existing glaciers, ice flow features such as drumlins and striae, eskers, moraines, unglaciated areas, areas submerged under marine waters and glacial lakes, maximum extent of glaciation, and upper known limits of ice action. In addition, an inset map on the scale of one inch to 150 miles shows the distribution of rock outcrops and drift cover on the Canadian Shield.

The information presented on the map was derived from photo-interpretation studies of large areas, particularly in northern Canada, and the results of field mapping carried out by the Geological Survey of Canada, provincial surveys, and many other organizations and individuals.

Many will, no doubt, wonder why the map is not interpretive, seemingly at least a half-step backward from the Glacial Map of North America, published by the Geological Society of America in 1945. Unfortunately, even an additional thirteen years of field work has failed to establish correlation of Canadian deposits with standard United States stratigraphy in more than a few areas and the bulk of information available is still not suitable for a stratigraphic presentation. This is a further step which will become possible only after more field work has been done. In the meantime, this up-to-date compilation will enable individuals to relate their own work to the regional picture and select areas where more information is needed. The map should find an important place in reference libraries and would be very suitable for display purposes.

The members of the committee in charge of preparing the map, J. T. Wilson (Chairman), G. Falconer, W. H. Mathews, and V. K. Prest, are to be congratulated on the publication of the Glacial Map of Canada.

PAUL KARROW.

Mr. Paul Karrow is a geologist in the Geological Branch of the Ontario Department of Mines.

Isle of St. Helena

by *Oswell Blakeston*

(Ambassador Books Limited,
Toronto. 189 pp. \$5.25)

Rock of Exile

by *D. M. Booy*

(J. M. Dent and Sons (Canada)
Limited, Toronto. 196 pp. \$5.00)

Mountains in the Sea

by *Martin Holdgate*

(The Macmillan Company of Canada,
Toronto. 222 pp. \$5.00)

The mid-Atlantic ridge occasionally breaks surface to form widely scattered islands. Three such islands are described in the South Atlantic.

In *Isle of St. Helena*, Mr. Blakeston introduces us to a precipitous volcanic island originally covered with fern and forest. Discovered in 1502 by the Portuguese, the island passed to the Dutch and in 1659 to the English.

For two hundred years the island prospered as a fortified "tavern of the ocean" run by the East India Company. Its location — on the trade route to the Cape and India — enabled it to supply passing ships with local beer, coffee, fruit, vegetables and wine.

St. Helena because of Napoleon, is often maligned and depicted as a bleak, unhealthy, inhospitable island. It was chosen as a place of exile, not for its loneliness (ships passed nearly everyday) nor for its scenery (beautiful), nor for its climate (mixture of Bermuda and Devon), but because steep cliffs make a landing impossible anywhere but at Jamestown, the capital.

In the nineteenth century, naval anti-slavery patrols were based on St. Helena. Many slavers were captured and their crews tried, convicted, and hanged at Jamestown. During the Boer War, the island was a camp for Boer prisoners.

With the opening of the Suez Canal, St. Helena declined in importance. Fewer and fewer ships called — from 1,458 in 1845 to perhaps thirty in 1956. The Indian Mutiny, 1857, saw the end of the East India Company, a company which had generously subsidized the island.

Today St. Helena, with a population of 5,000 (mostly coloured) and an area of forty-seven square miles, is a forgotten island. Goats have caused overgrazing and soil erosion, and rats and termites have been introduced. Many projects to prevent unemployment have failed largely because transient governors could not stay to see their projects completed. The growing of lilies and flax has been

only moderately successful. A half-hearted attempt to establish a tunny-fishing industry failed. Not surprisingly, many islanders migrate to the United Kingdom to find work.

Mr. Blakeston is lively and sympathetic. He captures the drama of the island and its everyday life. However *Isle of St. Helena* lacks a proper map; some photographs are fuzzy; others are replicas of standard thirty-year-old postcards. And, they say, one gets tired of scattered *one's* and *they say's*. One really does.

In *Rock of Exile*, Mr. Booy describes fourteen months spent, as one of a party of naval telegraphists on Tristan da Cunha in 1942-3.

Discovered by the ubiquitous Portuguese in 1506, the island "snored in the foam" uninhabited for another two hundred years. Then in 1816, during Napoleon's exile, the island was garrisoned by the British. When the garrison withdrew, William Glass, a Scotsman, and his Cape coloured family elected to stay on. Thus was the colony founded. Shipwrecks have increased the population which is now over 250.

Mr. Booy describes island activities: potato-picking, rat-catching, sea-fishing, wool-spinning, dancing, and guano-collecting. He skilfully portrays local personalities and captures their broad dialect.

He depicts a community living without crime, policed only by public opinion, a people with little amusement "yet contented, even happy". But in all practical matters, the islanders despite their poverty and their harsh environment were individualists incapable of corporate action. "The chief was merely a spokesman: he might arouse respect but not obedience. This equality often created an impasse when public action was required. When no one would take the lead or made the crucial decision, the result was inertia".

Unfortunately Mr. Booy appears to have possessed singular incuriosity. He seems never to have climbed the island's spectacular extinct volcano, explored its coastline, or been puzzled by the mysterious raised beaches and platforms. He hardly mentions the whaling history.

Some of the line-drawings (chapter headings) are excellent; others are comic-bookish. The photographs are snapshots, small and flat. The type is condensed and distracting.

Mountains in the Sea describes a stimulating and unorthodox expedition in 1955-6 by a group of young Cambridge scientists to uninhabited Gough Island.

One month was spent on Tristan. Mr. Holdgate fills in our knowledge

of the island: a new agricultural station is trying to improve the strain of cattle, prevent overgrazing, and grow timber; bird protection — fifty years too late to save the unique flightless rail — has been introduced; at least one of the ships wrecked on Tristan claimed to have seen the Flying Dutchman; Lewis Carroll's brother was resident clergyman from 1881-6.

And Mr. Holdgate *does* climb the 6,760-foot summit to find grass, moss, lichen, cinder, and radiating dykes at successively higher levels.

With a view of "an endless plateau of cloud stretching to the horizon, but absent in the lee of the island" the summit proved to be a crater filled with snow and ice.

From Tristan the party was taken by a ship of the Tristan Development Corporation to Gough Island. This corporation, set up in 1949 to exploit the crayfish (rock lobster) that abound in the waters around Tristan and Gough, has revolutionized island life. It employs islanders on its two ships and in its cannery on Tristan.

At Gough the expedition spent six months. The island was topographically and geologically surveyed; a weather station set up (now run by South Africa); flora and fauna sampled (good description of sea birds); and a seal census undertaken.

Geologically, Gough Island is composed, in order of age, of: (1) basalt flows, (2) basalt dykes, (3) trachyte flows, (4) basalt flows, (5) trachyte plugs. The high flat interior indicates that the island was at one time planed by the sea, later upraised 2,000 feet. A more recent uplift of 200 feet causes streams to cascade into the sea.

Peat samples were collected on Tristan and Gough for C_{14} and pollen analyses. Gough appears to have been unglaciated during the Pleistocene, so it is not understood why the island fauna is so meagre.

Although the expedition's equipment was modern and included a large sectionalized hut, there are peculiar omissions. No outboard motor. No aluminium boxes to prevent mice getting into food. And why must all Antarctic and sub-Antarctic expeditions be burdened with phoney post offices cancelling phoney mail?

In design, printing, and photographs (seven in colour) *Mountains in the Sea* is excellent. A large pull-out map and a comprehensive index are included.

PATRICK ARTHUR HILL

Professor Hill of the Department of Geology, Carleton University, Ottawa, has visited St. Helena. As a philatelist, he specializes in the postal and whaling history of the South Atlantic islands.



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Canada

The Polar Regions in Their Relation to Human Affairs Bowman Memorial Lectures, Series Four

by Laurence M. Gould

(American Geographical Society,
New York. \$3.50)

In the International Geophysical Year, which ended on the last day of 1958, the polar regions were in the public eye more than ever before, and they are likely to assume an ever increasing importance in world affairs. It was particularly fitting that the fourth in the series of Isaiah Bowman Memorial Lectures was given by a polar geologist and geographer, eminent alike in the field, in university and as director of the United States I.G.Y. Antarctic Programme. In a lecture on so wide a subject as the polar regions in their relation to human affairs, the treatment was bound to be highly selective, but Dr. Gould has succeeded in bringing out the main resources and potentialities of the two regions by focusing attention on the great differences between them. The northern region, centred round a frozen ocean, passes gradually into the more temperate areas of Europe, Asia and America, and in no

(Continued on page XIII)

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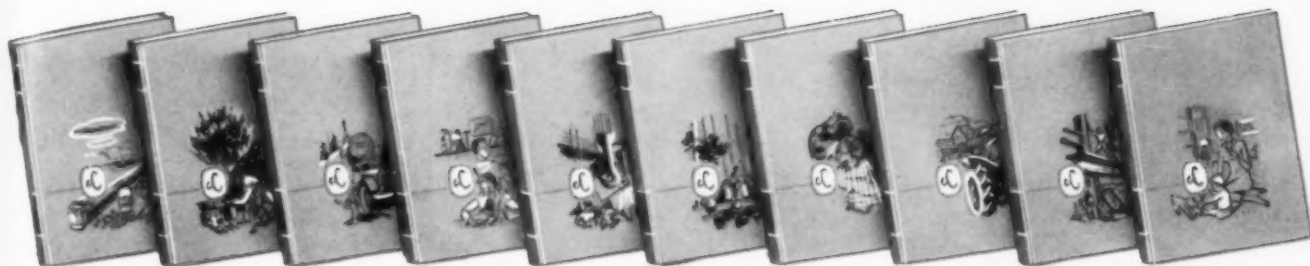
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(Continued from page XI)

sector is sovereignty over the land in dispute. The southern region is centred round a frozen continent, starkly isolated from the nearest land masses, and in no sector is sovereignty over the land agreed by all countries.

Of thirty-four pages of text, twenty-four pages, plus a lengthy appendix setting out sovereignty claims, are devoted to Antarctica, whose limits can be taken without ambiguity as the Antarctic Convergence. In the face of the massive United States I.G.Y. effort in little-known Antarctica, the author's unequal treatment of the two regions can perhaps be excused. But it is less easy to excuse an inconsistency in his treatment of what he terms the "North Polar Lands" — the Arctic and the sub-Arctic — which from his map surprisingly includes such places as Edmonton, Banff, part of north-western Montana, and Sudbury. In accordance with his definition of that vague region, the sub-Arctic, based on average monthly temperatures, the author might be expected to mention the oil wealth of Edmonton, the mineral wealth of Sudbury, or even the recreational amenities of Banff. Fortunately, however, he loses sight of his sub-Arctic boundary, and does not make specific mention of resources further south than "four hundred miles north of Winnipeg". In the Canadian Arctic islands he refers to the occurrence of coal, but not to the very favourable prospects for oil. A few errors were noticed in the book: on page 9, "the great Russian trans-Arctic flights of 1947" is a misprint for those of 1937; on page 10, it is incorrect to say that Canada has established a station on a floating ice-island, and to imply that all the Russian landings and scientific observations have been made on ice-islands, and not, probably with very few exceptions, on ice-floes.

These criticisms detract only a little from the value of the book, which is a useful and concise appraisal, with historical background, of the present status of the polar regions politically and strategically, economically and scientifically. The author is right to suggest some form of international jurisdiction as the only solution to the problem of political rivalry in Antarctica.

G. HATTERSLEY-SMITH.

Dr. G. Hattersley-Smith was leader of the Canadian I.G.Y. expedition to Lake Hazen on Ellesmere Island. He served on the Falkland Islands Dependencies Survey from 1948 to 1950, and is now on the staff of the Defence Research Board.

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Royal Standard: Red Ensign

by David Aitchison

(Ryerson Press, Toronto.

248 pp. \$4.25)

The royal standard, worn day and night from the mainmasthead of a ship denotes the presence on board of the sovereign; the 'red duster', worn alike by smoky coaster and glittering liner, indicates a British merchantman on her lawful occasions. When the Queen and the Duke of Edinburgh set out to voyage round the world in 1953 the royal yacht *Britannia* was not then completed and the Shaw Savill liner *Gothic* was used for the purpose, being raised to the status of royal yacht and wearing simultaneously the standard, the red ensign and the owning company's house-flag.

Responsibility was shared by Flag Officer Royal Yachts, who had the overall safekeeping of the monarch while afloat, and the master of the *Gothic*, who was in sole command of the ship; this kind of arrangement, common enough in the Navy, is most unusual in commercial shipping and, in a professional sense, held the seeds of triumph or disaster. The two officers concerned, Vice-Admiral Abel Smith, Royal Navy, and Captain David Aitchison of the Merchant Navy, worked together in such mutual confidence that a brilliant voyage resulted.

There has been a recent spate of books and articles on royal topics, most of them claiming to be intimate, some in bad taste and a few just arrant nonsense. Sir David's book is different: professing complete ignorance of the art of writing, and never before having clapped eyes on a courtier, the author has in fact produced an entertaining account of the royal tour and, quite as a by-product of his modest and cheerful style, a self-portrait of a seaman and a gentleman. You will find here no gushing revelations of supposed royal intimacies, but a sympathetic understanding of his Queen by one who was honoured to serve her afloat as senior representative of a great service.

Personally, I could hardly lay the book down; think of the situation that confronted the master of the *Gothic*. Liners usually sail in a regular groove where every wave is known by name and the routine of turn-round in port, complex though it is, is still a familiar task. This time the *Gothic* was to land Her Majesty on some of the remotest atolls of her wide domains where charts are none too reliable, cross the broad oceans with split-second timing to engage in splendid ceremonial on arrival, act as

(Continued on page XV)



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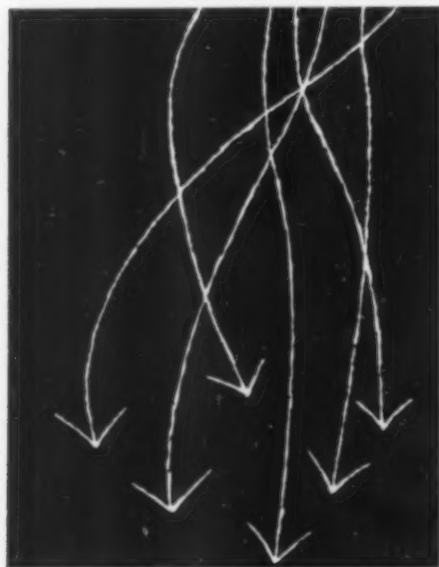
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(Continued from page XIV)

Admiral to the escorting squadron of different Commonwealth warships that joined from time to time, carry the most valuable passengers in shipping history (and the least demanding), and perform all this in the glare of the world's press coverage with the polished elegance traditional in Her Majesty's royal yacht.

Clearly a superman would be required and in the author and Mr. Charters, Chief Engineer of the *Gothic*, two at least emerged. At the height of the tour a boiler-suited figure would darken the doorway of the Old Man's room and report a defect which, routine in normal circumstances, would suddenly emerge with almost international ramifications. However, the engineers, working day and night performed some herculean tasks. If you have ever known what it means to blow-down a boiler at sea and repair leaky tubes in a heat that would literally bake an elephant, you will have some idea of the *Gothic* on the Australian coast.

For those whose admiration for our gracious sovereign is engendered by her manner of performing the crushing duties of monarchy, this book will give pleasure; Sir David, a Heart of Oak if ever there was one, is a fitting narrator of these events. Not for nothing was he elevated by Her Majesty, aboard his own ship, to become one of that select band of British shipmasters who have been knighted for service at sea.

THOMAS E. APPLETON

Lieutenant-Commander T. E. Appleton, R.C.N.(R), is on the staff of the Naval Constructor-in-Chief, Department of National Defence, Ottawa.

* * *

Beyond Athens

Journeys through Greece

by Monica Krippner

(Geoffrey Bles Limited, Don Mills,
\$5.00)

Presuming a return to sanity in world relations, or in those who have assumed today's power for evil, it would be a refreshing change for any true traveller, no matter in what interest, to retrace Miss Krippner's journeys through outer Greece. There are always the flesh-pots of the Athens we know so well as a recuperative.

The route is worth describing for its thoroughness. With the aid of an excellent draw-map, not to mention photographs and an index, the author carries us by every form of safe and unsafe transport, from diesel coach to shank's pony, in every type of terrain; first through Salonika in Macedonia as far as Alexandroupolis

in Thrace, still predominantly Turkish. Having braved the off-shore Thracian islands, we return along the borders of Bulgaria, Yugoslavia and Albania to the Pindos Mountains and so down the west coast, skirted by the Ionian Sea, to the Peloponese. Then to sea again and we have equally interesting visits in the Aegean Islands, next to Rhodes and Crete — why has no tourist-czar capitalized on this beauty haven? — and thus back by way of the old Byzantine Empire in the southern Peloponese to Corinth and Piraeus.

At every point the author managed to go off on some unbeaten side-track worth recording, no matter what the apparent difficulty. These she takes in her able stride, only suffering defeat when her presence unfortunately attracted other human beings from so-called civilization.

The story unfolds as a delightful blend of legend, history and modernity — any traveller would be well advised to use this book as both guide and mentor — with a clear perception of values to boot. Greece is not Europe, not the Near East and hardly the Levant: it is a small world of its own and a very important one in today's affairs. One is struck by the general struggle for existence (on which Communism thrives) and amazed at the well nigh incredible exceptions to prove the rule. A thriving world export trade in fur coats from Kastoria, near the point where Albania and Yugoslavia meets Macedonia, was the most unexpected. A successful emigrant in the United States conceived the idea of shipping all the discarded fragments of mink and other luxury furs to his home town, where only exceptionally cheap labour would make "assembly" worth while! And talking of successful emigrants, we are given

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a clear insight into the aspirations of the impoverished and the assistance given by such countries as Australia.

For the archaeologist the ruins of bygone centuries and fantastic monasteries carved in the mountains are subjects in themselves, carefully described and assessed. In fact, right down to the sad description of the usual "students' notes", incited by the factions concerned over the Cyprus question, but treated by undisciplined youth as an outlet for self-expression of the lowest order, we get a feeling of being on the inside with the author.

Scant justice is done, in such brief references as occur, to the genuine efforts at all times in all circumstances of King Paul and his delightful, tireless Queen Frederika — the People's Heroine — but this may be forgiven as somewhat outside the scope of the work. Suffice it to say that the traveller needs to be hardy at times and a good sailor, even fearless, but with this book as a *vade mecum* the journeys would be made much easier and certainly never forgotten.

ROWLAND H. STOKES-REES.

Commander H. Stokes-Rees R.N. saw much submarine service in the Royal Navy. He knows Greece and the Mediterranean well. He is now working in Montreal.

* * *

The Sea Story

by Frank Knight

(The Macmillan Company of Canada, Toronto. \$4.00)

The author of this book holds the highest professional qualification the sea can offer, that of Extra Master.

It is the business of navigators to

plot the position, course and speed for the voyage in progress; in this respect Captain Knight leaves the reader in no doubt where he is going, for *The Sea Story* is an orderly exposition of books from the Argonautica to the present revival of interest in the history of sail.

For those with a good knowledge of maritime writing *The Sea Story* can be taken "neat" as eminently palatable commentary. Readers who have just discovered the inexhaustible fascination of the whole subject will find the book an admirable basis for a literary punch-bowl of the sea if they sample here and there from the very comprehensive bibliography appended.

In browsing through the index it is interesting to look at the number of sailors who have written of their own element. Some, like Cook and Anson, left journals of important voyages which are themselves records of human achievement, while others such as Hickey, Slocum and Voss recorded the day to day events of their wanderings. Still others, Conrad, Masfield and Bone for instance, have taken their rightful place as masters of the English language. There is no doubt that, as a class, seamen write well.

Frank Knight, typical of the cloth, is an honest writer who, while doing justice to the romance of the matter, is not carried away by it. Of the decline of the merchant sailing ship he says "there is nothing glorious about the last age of sail — it was an age of apprentice labour, rotten gear and patched sails, inadequate food and miserable conditions".

On the fictional side I am not a C. S. Forester man — to my loss I am

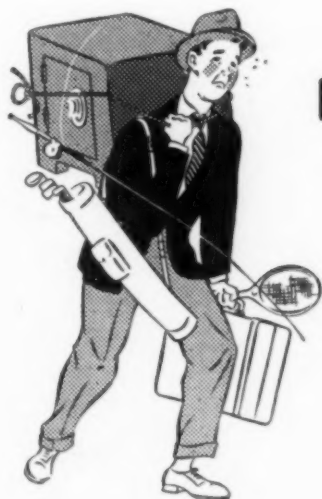
sure, for he has left his mark on the story of the Old Navy. Weaned on Peter Simple, I gloat to read "it may be regretted that Forester has to some extent superseded Marryat; but on the other hand there are signs that, probably because of Hornblower's

(Continued on page XVII)

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popularity, Marryat is being revived. Forester would be the first to find it so".

In short, *The Sea Story* is a good book, well printed in the Macmillan tradition and illustrated sparingly but with choice.

The bibliography contains not only the main strands of the rope of sea literature, but also some of the lesser known fibres such as Michael Scott and Woodes Rogers. If I looked in vain for such favourites as the *Wynne Diaries* and *The Riddle of the Sands* that is perhaps a personal taste.

This book is almost essential for libraries and students of the sea. For private readers it will prove a stimulus to further enjoyment.

THOMAS E. APPLETON.

Lieutenant Commander T. E. Appleton RCN(R) P.Eng. M.E.I.C. is on the staff of the Naval Constructor-in-Chief in Ottawa.

* * *

Kirby's Gander

by John Patrick Gillese

(The Ryerson Press, Toronto. \$3.95)

Kirby's gander is just one of the thirteen animals which are the subjects of the short stories making up

this volume. Some of the others are a bald eagle, a grizzly bear, a coyote, a timber wolf, a cougar, a muskrat, a skunk and a moose. The locales are all Canadian.

The character of the rogue male seems to be one of the author's favourites and many of the tales relate the tense and conflict-filled lives of those super-individuals. Such an approach—subjective and dramatic—results in lively, exciting stories but not in representative pictures of the lives of wild animals. However, that is not the author's intention, nor is his book aimed at the purist who will assuredly be offended by the dominance of anthropomorphism. Gillese is a story-teller and it is on that basis that his book should be judged.

These are rousing stories and they convey a fine flavour of wildness and wilderness. Gillese has a colourful style and his striking imagery has much appeal. If Kirby's Gander makes more Canadians aware that their lives can be enriched by familiarity with wild animals and their habitats, Gillese can be well satisfied.

DAVID MUNRO.

Mr. D. A. Munro is chief ornithologist in the Canadian Wildlife Service, National Parks Branch, at Ottawa.

Essentials of College Geography

by C. Langdon White, George T. Renner and Robert T. Novak

and Directed Studies in Introductory College Geography

by George T. Renner and Hugh C. Brooks

(Appleton-Century-Crofts, Inc., N.Y. \$6.00 and \$2.36 respectively)

Essentials of College Geography is another in the long list of texts designed for introductory college courses in geography. Indeed, it is a condensation of *College Geography* by two of the authors (White and Renner) which appeared a year ago. It also contains some material which first appeared in their earlier works and which identified them as belonging to the school of thought which characterizes geography as "human ecology".

The structure of the book is not particularly new however. Primary emphasis is placed upon the climatic element of the environment so that twelve of the twenty-five chapters are devoted to the major climatic regions of the world using fundamentally Koeppen's divisions (without introducing his statistical explanations). Land relief and land forms are regarded as being next in importance in the factors of the environment and five chapters are devoted to a general discussion of this topic — plains, mountains, hill country and plateaux as human habitats. The remaining chapters are concerned with soils, minerals, water, space and form, mathematical geography, globes and maps and finally population distribution and growth. Of particular use to teachers is the list of films and film strips given at the end of each chapter, although they are produced in the United States of America and may not all be easily available in Canada.

Also of particular use to teachers is *Directed Studies in Introductory College Geography*. This is a group of twenty-nine directed exercises each of which consists of a series of questions with space for the answers on the sheets themselves. The questions are prefaced by a statement of the objectives of the exercise, the materials required and text references. Unfortunately, the end paper, World Political Map, shows Newfoundland and Labrador as if they were separate political units — strangely behind the times in view of the fact that "new countries" such as Ghana are indicated.

However, these publications are excellent for the purposes which they are designed to serve although many in Canada may feel that they are more suited to our high schools than our colleges.

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